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OF THE
AMERICAN VETERINARY MEDICAL ASSOCIATION

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Volume 126 FEBRUARY 1955 Number 935

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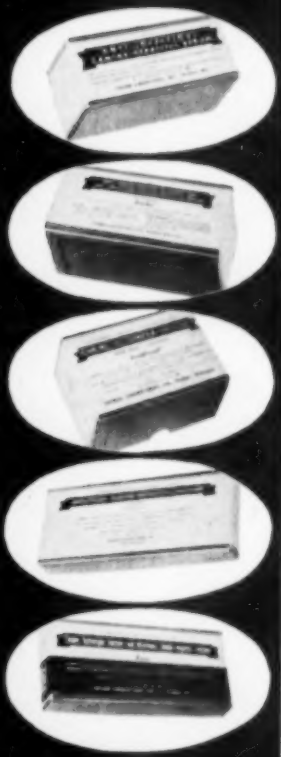

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AVMA ☆ Report

Veterinary Medical Activities

✦ President A. H. Quin appeared on the programs of the Annual Conference for Veterinarians, University of Pennsylvania, Philadelphia, January 4-5; the Cornell Conference for Veterinarians, Ithaca, New York, January 5-7; the Oklahoma V.M.A., Oklahoma City, January 10-11; the Iowa V.M.A., Des Moines, January 18-20; and the Minnesota V.M.A., Minneapolis, January 24-26.

* * *

✦ President-Elect Floyd Cross took part in the programs of the annual meeting of the Arkansas V.M.A., Little Rock, January 4-6; Ontario V.M.A., Toronto, January 13-15; Intermountain V.M.A., Salt Lake City, January 17-19; California V.M.A., Davis, January 24-26; and Southern California V.M.A., January 29.

* * *

✦ Executive Secretary Hardenbergh appeared on the program of the annual meeting of the Indiana V.M.A., Indianapolis, January 12-14.

* * *

✦ Assistant Executive Secretary Kingman participated in the program of the annual meeting of the Tennessee V.M.A. in Knoxville on January 9-11.

* * *

✦ Dr. John L. McAuliff, chairman, and Dr. Dale Sorensen, secretary, of the Section on General Practice for the 1955 AVMA annual meeting met at Association headquarters January 7.

* * *

✦ President A. H. Quin and Executive Secretary Hardenbergh on January 25 met with the Local Committee on Arrangements for the AVMA Convention to be held in Minneapolis, Aug. 15-18, 1955.

* * *

✦ General J. A. McCallam, Washington representative, and Assistant Executive Secretary Kingman attended the "Greenbrier Conference," sponsored by the National Association of Manufacturers, in White Sulphur Springs, W. Va., January 14-15.

* * *

✦ The "Proceedings Book," containing the material from the Opening and Closing General Sessions, the papers and discussions presented before the several Section Meetings, the material relevant to the television demonstrations and the Conference of Editors, was placed in the mails Dec. 10, 1954. This date is two months earlier than last year and is the result of some "superhuman effort" on the part of the AVMA editorial personnel.

* * *

✦ The Business Proceedings of the 1954 AVMA annual meeting, sent only to AVMA members, comprises Part II of this issue of the JOURNAL.

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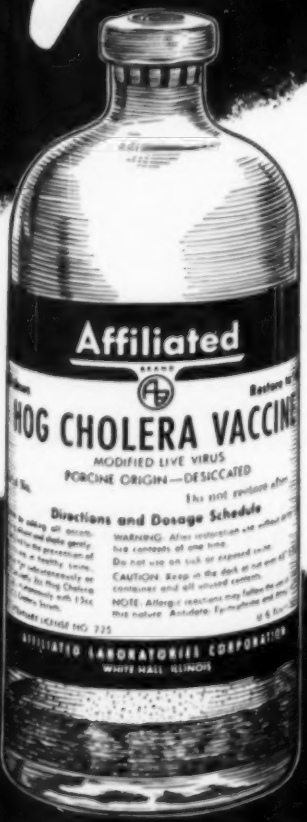

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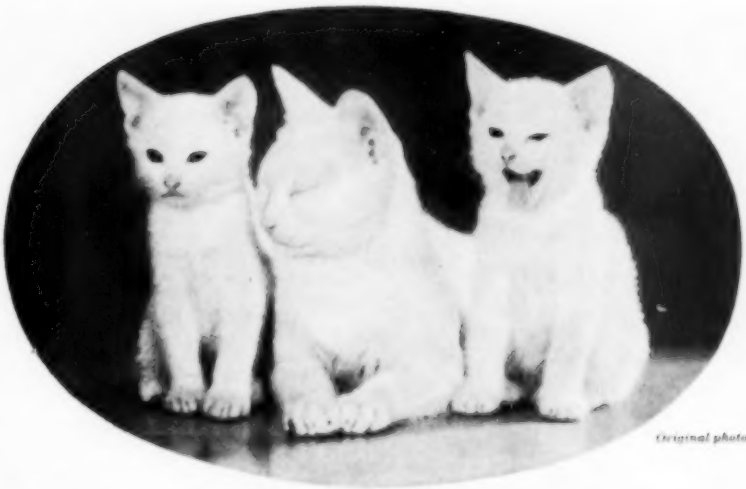

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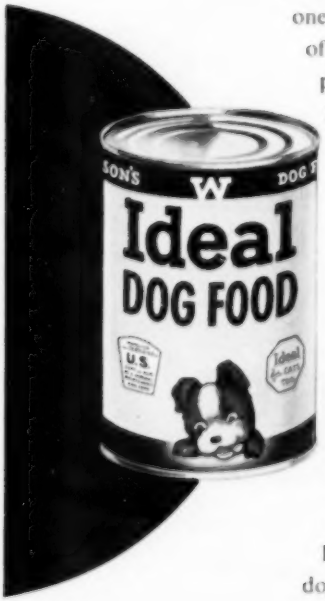

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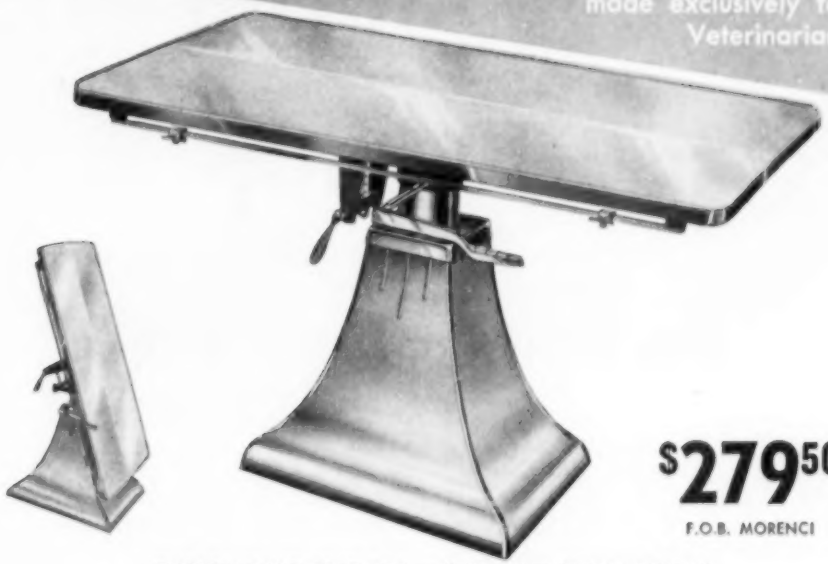

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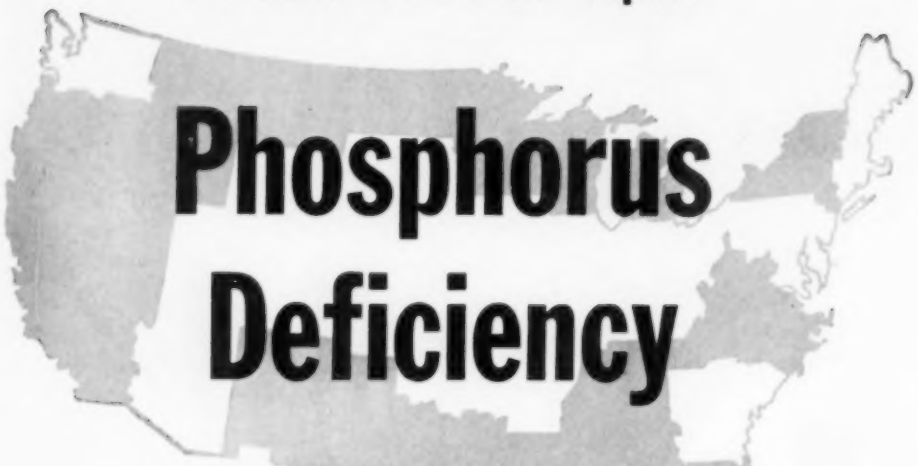

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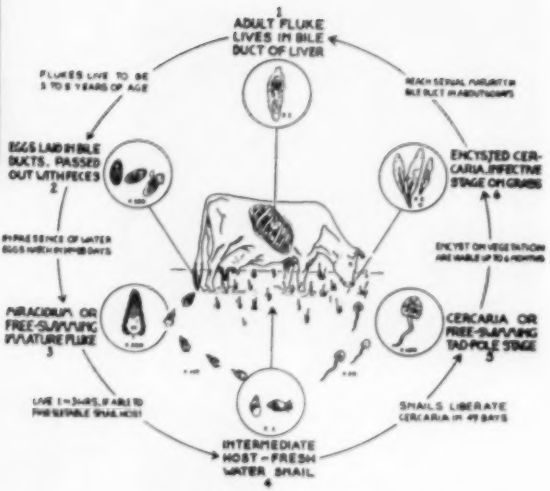
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VOL. 126 FEBRUARY, 1955 No. 935

Preliminary Evaluation of a Femoral Head Prosthesis in the Presence of Coxitis

Lieutenant WILLIAM I. GAY, V. C., U.S. Army

Washington, D. C.

CONSIDERABLE INTEREST has been shown in the use of prosthetic devices for replacing a deformed femoral head in the dog. Much pride and satisfaction is derived when such a replacement results in the return of a normal gait. However, during this entire procedure the live tissue which surrounds the prosthesis can be irritated and even injured in a manner similar to that caused by the pressure of a retractor or chisel, even though the response to the former be slower. This device was used in a series of 6 dogs, 5 of which involved previous treatment that had resulted in unsatisfactory prognoses.

In this study, 6 dogs whose coxofemoral articulations had been severely traumatized were given prosthetic femoral heads and necks in an attempt to reclaim them as useful animals. Five of these dogs had suffered dislocations about four weeks before treatment was begun. Previous attempts to repair the damage in these 5 animals were made by drilling a hole in the femoral neck and acetabulum, with a large drill, through which a fascial flap was passed, thus attaching the femur to the pelvis. As the result of this previous surgery, coxitis developed in the 5 dogs, and it was decided that these animals, plus 1 whose hip had been dislocated for ten days, would receive the prosthesis. When this report was written, a year after the prosthetic operation was completed, 3 of these dogs were using the joints normally, and the treatment has thus far proved to be effective. The operation proved to be ineffective for the other 3 dogs. On the 3 latter animals, these coxofemoral dislocations were later examined directly when the animals were subjected to postmortem study.

From the Veterinary Division, Army Medical Service Graduate School, Walter Reed Army Medical Center, Washington, D.C. Dr. Gay is now in the Laboratory Aides Branch, National Institutes of Health, Bethesda, Md.

THE PROSTHESIS

The prosthesis was machined from a straight piece of stainless steel rod (alloy 316) ¾ inch in diameter. One end of this rod was hemispherical for articulation with the acetabulum. The diameter of the neck was ⅛ inch smaller than the diameter of the hemispherical end so as not to limit the rotation of the latter in the joint socket. Into the edge of the femoral end a large intramedullary pin was firmly fixed at an angle of 55 degrees to the midline, a second smaller hole was drilled to accommodate the anchor pin. This anchor pin was driven into the trochanter after the prosthesis was placed in its permanent position on the femur and the intramedullary pin inserted into the medullary canal (fig. 1, 2).

OPERATIVE PROCEDURE

The dorsal approach through the gluteal region and the gluteal muscle attachments to the coxofemoral joint, used in this operation, was the one recommended by Brown.[1,2] The femoral head was removed with a Gigli saw and the femoral neck shaped and reduced with bone rongeurs to fit the prosthesis. Once the intramedullary pin was in place and the prosthetic neck rested in a normal position, the

anchor pin was driven into the trochanter and cut off close to the prosthesis. After the gluteal muscles were reattached with steel wire sutures, the openings in the fascia and skin were closed. A collodion dressing was placed over the incision and, in all cases but 1, no postoperative fixation was applied. In dog 2812, the leg was bandaged forward along the body for five days.

Postoperative care was limited — the dogs were allowed no exercise outside their cage. They received 300,000 units of penicillin G procaine daily for five days. The fact that these animals were not permitted to exercise freely may have affected the treatment adversely.

CASE REPORTS

Dog 3289.—Two previous surgical attempts were made by another method to repair the hip of dog 3289, a 24-lb. female Terrier-Hound type. The resulting deformed articulation is shown in figure 3. From a study of this radiograph, the prognosis of the following prosthetic treatment was uncertain. The early postoperative recovery was encouraging, but by the second week the dog was refusing to use the leg, and it was soon evident that the prosthesis was pushing its way out of the weakened acetabulum (fig. 4). This operation was unsuccessful. It probably failed because the acetabulum was so chronically inflamed that the dog could not move comfortably. The acetabulum was too shallow and the surrounding tissue was so eroded that the walls of this socket rapidly gave way under the pressure of the prosthesis. During the postmortem inspection, the prosthesis was found to have been firmly attached to the femur.

Dog 2418.—The coxofemoral dislocation of dog 2418, a 31-lb. female Collie-Shepherd type, had been previously repaired with some success by the afore-mentioned attempt to rejoin the femoral head and acetabulum with a facial flap. But this treatment left the animal suffering from coxitis since there was apparently an insufficient nutritional supply to the femoral head resulting in the necrosis of the latter. The operation and the following postoperative convalescence were uneventful. The dog began making use of the leg on about the eleventh day after the prosthesis was applied and was walking normally a month later. About ten weeks

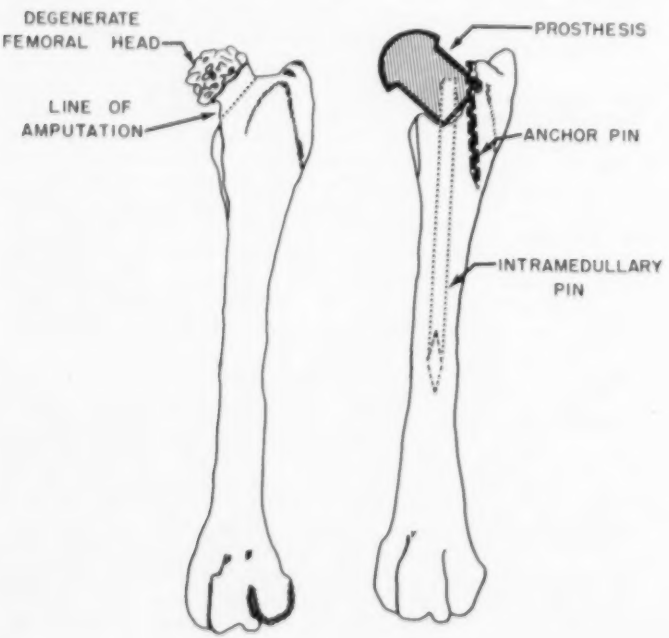

Fig. 1—Diagram of the prosthesis attached to a femur as a replacement of its degenerate head.

after the latter surgery the animal suffered a fracture of the opposite femur. This was fixed with an intramedullary pin and the dog made a satisfactory recovery. The added weight-bearing on the hip that had received the prosthesis appeared to have no adverse effect on that joint (fig. 5).

Dog 2850.—This 33-lb. male Collie-Shepherd was given a good prognosis but made an unsatisfactory recovery. The animal's movement following the prosthetic operation appeared to be normal and the coxofemoral joint bore the weight of the leg, but a radiograph revealed some preoperative degeneration of the femoral head. The early postoperative progress was good. The dog could move the leg and attempted to walk with it. He later avoided placing any weight on the repaired joint. His exercise was limited for several weeks following the operation, but when he was given freedom he still refused to use the leg. The cause of this refusal and the pain manifested when the articulation was moved was never determined, even on autopsy. The animal was destroyed ten weeks postoperatively. Postmortem studies revealed that the sole pathological change was a medial protrusion of the pelvic wall and a markedly deepened acetabulum. The ineffectiveness of this operation was probably due to the weakened medial wall of the acetabulum and resulting limited motion (fig. 6). The prosthesis was well attached to the femur at the time of autopsy.

Dog 2812.—This 25-lb. female Collie-Shepherd had undergone a previously unsuccessful repair of the dislocation. The results of the first operation left the femoral head displaced (fig. 7). A prosthesis was applied although it was doubtful whether it would be effective. Seven days after the operation, the dog was using the leg in a slow walk. Recovery was uneventful, although it appears there may have been some anterior erosion of the hip socket (fig. 8).

Dog 2857.—A dislocation in a 21-lb. male Terrier-Hound had been unsuccessfully repaired twelve weeks earlier and the joint was disarticulated (fig. 9). Because coxitis had developed in the injured joint, the prognosis of this treatment was poor. The dog avoided using the involved leg except in emergencies, and on the twentieth postoperative day the prosthesis was found to be dislocated (fig. 10). It appeared that the acetabular socket would be too insecure for further attempts at replacement and the dog was destroyed. Here, as in dog 3289, the inflamed bone had rapidly eroded before the pressure of the prosthesis. At autopsy, the prosthesis was found to be firmly attached to the femur.

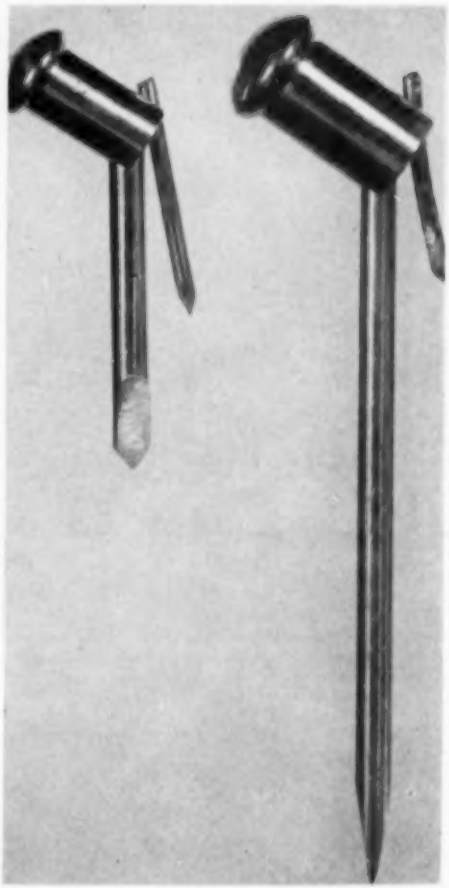

Fig. 2—Prostheses shown in two sizes following their removal from femurs of dogs.

Dog 3644.—A 24-lb. male Hound, operated on ten days after an uncomplicated dislocation, was bearing weight freely on the joint two weeks postoperatively and the recovery was uneventful.

DISCUSSION

Each of these dogs suffered from coxofemoral injuries and the prosthesis was

Fig. 3—Radiograph of luxated and deformed coxofemoral articulation (dog 3289): (1) deformed acetabulum; (2) head of the femur.

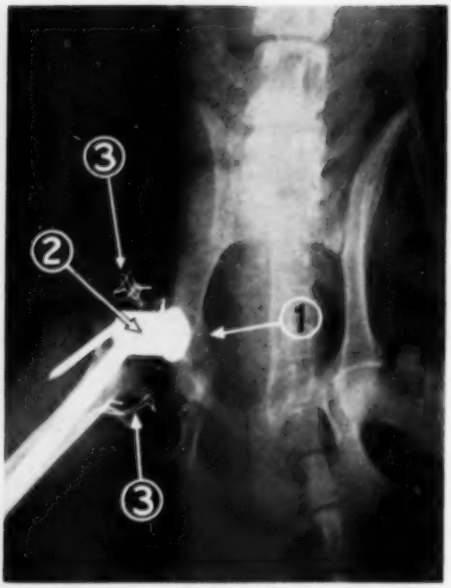

Fig. 4—Radiograph of dog 3289 showing prosthesis applied. Notice the weakened medial wall of the acetabulum (1) which has allowed a subluxation of the prosthesis (2), and the stainless steel wire sutures (3).

Fig. 5—Radiograph showing normal acetabulum (1) of dog 2418 with prosthesis (2) in place, stainless steel suture (3), and intramedullary pin reducing fracture on opposite leg (4).

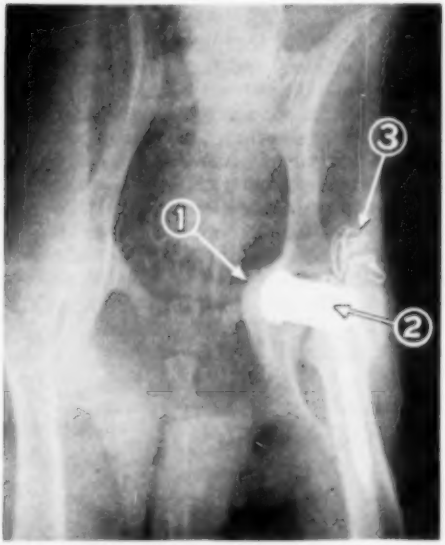

Fig. 6—Radiograph of pelvis of dog 2850. Notice the depth and the weakened medial wall of the acetabulum (1), the result of placing pressure on a severely inflamed joint surface: prosthesis (2); and stainless steel sutures (3).

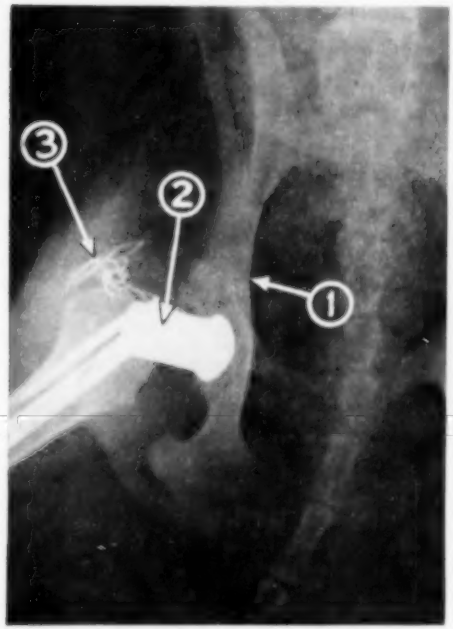

Fig. 8—Radiograph of pelvis of dog 2812 showing inflammation about the acetabulum (1) in a joint which is functioning nearly normally, the prosthesis (2), and stainless steel sutures (3).

Fig. 7—Radiograph of a dislocated and degenerating femoral head (arrow) in dog 2812.

Fig. 9—Radiograph showing extreme degeneration of the acetabulum and head of the femur in dog 2857.

applied regardless of the clinical prognosis. The results were encouraging. However, the operation on 1 animal (dog 2850), which had been given a good prognosis, failed and the dog manifested considerable pain. The fact that weight was placed on this joint early in the convalescent period

Fig. 10—Radiograph of luxation of prosthetic femoral head resulting from an attempt to repair a severely arthritic coxofemoral articulation (dog 2857).

may have had some influence on the failure.[3]

The degree of pain endured by these animals was not evaluated but, in general, it appeared to be reduced after the prosthesis was applied. This operation seldom relieves pain completely in the human being and when it does, the patient is usually a young person. The cause of this pain was infrequently explained in the literature.[3,6]

The prosthesis was designed to be attached firmly to the femur so there would be no loosening of the device from angular motion.[3,6,7] This attachment should provide for an equal distribution of weight between lateral and medial bone cortices. Prosthetic heads slightly smaller than the acetabulum were selected so that it would be unnecessary to ream the joint sockets. Further reaming of the acetabulum should be avoided since its original surface can best resist the pressure produced by the articulating structure and since, in some instances, the walls of the acetabulum may already be eroded. Whenever possible, it is preferable to place the base of the prosthetic neck under the periosteum[3,6] because overgrowth of bone at this point will cause a firmer union. Generally, the maximum amount of attachment is achieved the day the prosthesis is installed.[7]

SUMMARY

An improved, inexpensive stainless steel prosthesis has been found whereby a diseased femoral head can be replaced so as to insure a firm attachment to the femur provided there is sufficient acetabular surface left to support this device. The operative technique employs the dorsal gluteal approach to the coxofemoral articulation. The success of this procedure appears to be directly proportional to the extent of coxitis present.

CONCLUSIONS

1) It is not wise to undertake prosthetic replacement of the femoral head in the presence of more than slight inflammation or degeneration of the acetabulum.

2) Postoperative splinting was not evaluated in this experiment. Results might have been improved by a certain degree of postoperative fixation.[3,5]

3) Firm attachment of the prosthesis to the femur apparently prevented early loosening of this device from the bone.

4) The described prosthesis could be improved by reducing its neck diameter (therefore its weight) and by increasing its weight-bearing surface from a 150-degree arc to a 180-degree arc.[7]

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Aujeszky's Disease in Dogs in Germany.—Clinical and postmortem evidence of Aujeszky's disease in 2 dogs is reported. It was readily differentiated from rabies by a histological diagnosis of meningoencephalitis affecting primarily the medulla oblongata.—*Vet. Bull., Nov., 1954.*

Legal Collection of Accounts Due

BERT REINOW, D.V.M.

Pinedale, Wyoming

IN THE OPERATION of a veterinary practice, it is sometimes necessary to take recourse to legal collection of accounts payable, other means having failed. Because of unfamiliarity with the ways and means provided by law for such collection, veterinarians often turn such accounts over to collection agencies or attorneys. I am not familiar with the laws in other states, but they must be similar in set-up to those of Wyoming; and since serving as justice of the peace (county magistrate), I have become somewhat familiar with the legal aspects of such collections.

In Wyoming, on accounts due in amounts in excess of $200, and where suit must be made against some one in residence outside of the county, recourse is through an attorney and action in district court. If the amount is under $200, however, action can be started in the justice court of the county in which the defendant resides. On accounts of less than $200, where service of the summons can be made within the county, action can be started and completed within the jurisdiction of the local justice of the peace at no cost to the plaintiff.

Legal collections before the justice of the peace are divided into two categories: small claims and civil actions. Small claims consist of bills under $50; civil actions, over $50, but under $200. In the case of a small claims action, the plaintiff should appear before the justice of the peace, and make a verbal complaint that the defendant owes him a certain sum for services, and upon repeated request, by billing, since a stated date, has either refused payment or has ignored such requests. Civil actions are instigated as above except that such complaint is made in writing (two copies). The statement of the account should appear on the written complaint.

With small claims, upon verbal complaint, the justice makes out a "summons," and either has it sent to the defendant via registered mail, or has the county sheriff serve it in person. The plaintiff may rightfully request interest at the rate of 7 per cent from the date the bill was incurred. The statute of limitations on such action in the State of Wyoming is eight years. The defendant is sued for the amount due, plus interest and costs of action. Where judgment is awarded the plaintiff, the defendant pays all costs. By statute, on small claims, the court costs are $1.50. The sheriff receives a fee of $1.00 for service of the summons and 25 cents for the return, the summons being made out in two copies, one served and left with the defendant, the original filled out by the sheriff and returned to the justice of peace. The sheriff also receives mileage at the rate of 10 cents per mile in the service of the summons. The justice has the right to receive payment for costs and sheriff's fees when the summons is returned to him by the sheriff, but these costs are added to the original bill as previously stated.

In civil actions of more than $50, a copy of the written complaint is served with the summons; the original stays in the docket of the justice of the peace. On small claims, it is not necessary for the justice to make docket entries until the case comes to court; but in civil actions, entries of all proceedings should be entered and dated as action is started and continued to protect the validity of future judgment, if made.

One of three things now happens: (1) the defendant comes into court and pays; (2) he comes into court and objects; or (3) he does not appear. Usually, he approaches the plaintiff before his case is to be called in court and tries to pay his bill. The plaintiff should not settle unless he is willing to pay the costs and fees. It is better to explain to the defendant that his bill has been turned over to the court for collection, and if he wants to take care of it now, he must see the judge. In the first of the above instances, all is well. In the second, the justice will want the plaintiff in court, and will ask the defendant why he objects to payment, judge the facts, and make arrangements for the defendant to pay. In the third instance, the summons states that if the

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defendant does not appear when summoned, a "default judgment" will be issued in favor of the plaintiff. If he then does not appear, you have a judgment. At this point, the plaintiff may, if he wishes, contact the defendant and request payment or arrangements for payment. Usually, he requests the justice to "execute" the judgment which may be done by the sheriff seizing property owned by the defendant or by "garnishee" of salary due the defendant. The garnishee is to be served on the person paying wages to the defendant; not on the defendant, himself. There are accruing costs and fees to the justice and to the sheriff, but, once again, these are charged against the defendant.

There are other methods of legal collection of accounts due, but this is the simplest and is provided for by state statutes.

1954 Anthrax Epizootic in Louisiana

From July 1, to Oct. 31, 1954, 1,463 cattle, 310 horses, 109 hogs, and 1 deer were reported by the U.S.D.A. to have died from anthrax in southeastern Louisiana. During November, only 5 cattle were lost. In nearby Wilkinson County, Mississippi, 172 animals died of anthrax during August and only 3 since.— *U.S.D.A., Nov. 18, 1954.*

Brucellosis Eradication Program

The accelerated program for the eradication of brucellosis includes the restoration of federal indemnities up to $25 for grade and $50 for purebred animals, which, unless forbidden by the states, will be paid whether the state matches the payments or not. Four plans are offered:

1) Plan A calls for testing, immediate slaughter of reactors, disinfection, thirty-day retests, and the possible vaccination of calves;

2) plan B requires testing, calf vaccination, branding of reactors but they may be kept under quarantine until they can be marketed without heavy losses;

3) plan C, for range conditions, consists of calf vaccination without testing;

4) plan D, an emergency measure, calls for the vaccination of nonreacting adult cattle.

Practicing veterinarians are urged to participate on a per herd and per head basis instead of the *per diem* basis. Three states, North Carolina in 1942, New Hampshire in 1949, and Maine in 1950, became modified certified brucellosis-free states with less than 1 per cent reactors. The reactor percentage, which had dropped from 10.0 in 1934 to 3.3 in 1953 and 2.63 in 1954, is expected to increase with an expanded program because of new herds being tested and because of the ring test which means individual tests only on infected herds. Under the accelerated program, eight states have indicated that they will require that all herds which furnish milk be brucellosis-free within the next one to three years. California, in 1956, will require blood-testing as well as vaccination.—*U.S.D.A., Nov., 1954.*

Psittacosis Control Requested

In New Jersey, retailers of parakeets are reported to be requesting control of psittacosis in their aviaries, since a number of parakeets in the state have been found infected. The New Jersey State Department of Health has, therefore, issued a memorandum for the information of all licensed veterinarians in the state outlining the Hooper Foundation method of injecting tetracycline twice a day for fourteen days (*see* JOURNAL, Jan., 1954: 61).

Rinderpest on Ship in Mediterranean

A buffalo which had been loaded in Kenya, Africa, eight weeks previously developed rinderpest while on a ship in the Trieste harbor. Another buffalo in the shipment had died and been thrown overboard in the open sea. When loaded, both had adequate health certificates and had been held in quarantine over one hundred days. They had apparently been infected by cattle which had been loaded in Mogadiscio (Italian Somaliland) on Sept. 10, 1954, and unloaded at Suez.—*Off. Internat. des Epizoot., Nov. 24, 1954.*

Aftosa Ban on Mexican Cattle Ended

The normal importation of cattle and other livestock from northern Mexico was resumed on Jan. 1, 1955, after being prohibited for nineteen months because of a reappearance of foot-and-mouth disease (*aftosa*) near Vera Cruz, Mexico, in May, 1953. The epizootic was eradicated in April, 1954.

A fish has been found which lives in a hot springs in Ceylon at a temperature of more than 120 F.—*Sci. News Letter, Nov. 27, 1954.*

SURGERY & OBSTETRICS
AND PROBLEMS OF BREEDING

Colostral Transfer of Anti-Erythrocyte Agglutinins from Mare to Foal

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THE PREPARTURIENT concentration of anti-erythrocyte agglutinins in the colostrum of mares sensitized to fetal red cell antigens has been reported by Bruner, Hull, and Doll.[1] These authors found that the colostral titers in 10 such mares fell to less than 1/2 within one week after foaling, but they suggested that antibodies might persist in the milk for some time at levels too low to be detected by their tests.

Bruner, Edwards, and Doll[2] showed that antibacterial antibodies could be demonstrated in the milk of immunized mares up to six months after foaling, although only at about 1 per cent of the concentration present at parturition. These authors also reported that a foal, 5 days old, allowed to suck a mare whose colostrum contained antibody capable of reacting with the foal's erythrocytes, failed to absorb any detectable antibody from the colostrum.

Bruner, Doll, Hull, and Kincaid[3] concluded that thirty-six hours after birth it is safe for a foal to suck a mare whose colostrum has contained anti-erythrocytic antibody, provided the mare has been hand-milked frequently in the interim. At this time, the titer of antibody in the milk should have been reduced to a safe level and the foal should no longer be capable of absorbing unaltered antibody through its alimentary tract.

CLINICAL OBSERVATIONS AND LABORATORY INVESTIGATIONS

This paper concerns a Thoroughbred mare whose breeding history was as follows: In 1951, she produced her first foal which was normal at birth but died when 8 days old. Two days after the death of her own foal, the mare was used as a foster mother for a foal 2 days old. This foal died nine days later. Both foals, prior to death, had shown typical clinical appearances of hemolytic disease, and on postmortem examination the characteristic lesions of the condition were observed, but the diagnosis was not confirmed serologically.

In 1952, the mare aborted at ten and one-half months. The cause of this abortion could not be determined.

In 1953, the mare's serum was tested, twenty and twelve days before she foaled, with the erythrocytes of the stallion to which she was in foal, using the direct agglutination test and the indirect antiglobulin test of Coombs, Mourant, and Race.[4] The titer at the earlier test was 8:32 (1/8, direct agglutination and 1/32, indirect agglutination) and at the second test it had risen to 32:128, indicating active response of the mare to fetal erythrocyte antigen(s). Accordingly, at birth the foal was not permitted to suck but was fed with milk from another mare, and the dam was hand-milked. The colostrum at parturition, when tested with the foal's red cells, showed a titer of 64:512. This titer dropped in twenty-four hours to 4:32 and by the sixth day it had fallen to 1:8. At the thirteenth day, when testing was discontinued, the titer was 0:4.

In view of the disastrous results which had ensued in 1951 when the mare was used as a foster mother, the owner decided not to permit the foal to suck until it was 13 days old. The direct antiglobulin test of Coombs, Mourant, and Race[5] was performed on the foal's blood at birth and on a number of occasions during its first 13 days of life, including one immediately prior to its sucking the dam for the first time. None of these tests revealed any evidence of sensitization of the erythrocytes. Twenty-four hours after the foal had commenced sucking its dam, when the foal was 14 days old, its erythrocytes were found to be sensitized, as evidenced by a rather "weak" reaction to the direct antiglobulin test. However, no

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clinical signs of hemolytic disease appeared and red cell counts and hemoglobin levels remained within normal limits.

DISCUSSION

These observations are of interest (1) because they confirm that anti-erythrocyte agglutinins continue to be secreted at low concentrations in mares' milk for some time after parturition, and that the anti-globulin test is capable of detecting their presence, and (2) because they indicate that in this instance the foal was capable of absorbing sufficient unaltered antibody through its alimentary tract to produce sensitization of its erythrocytes. The results of the serological investigations made on the mare and her foal in 1953 strongly suggest that the death of her own foal and that of her foster foal in 1951 may in fact have been due to hemolytic disease as was suspected at the time. Although the mare had foaled eight days before the foster foal commenced sucking, it seems quite likely that the mare's milk contained antibody in that year also, although possibly in low concentration. However, the mare was an exceptionally generous milker and thus the foal would have ingested quite a large absolute amount of antibody. The mare died in 1953 rendering further investigation impossible.

CONCLUSIONS

It is suggested that there may be exceptions to the general recommendation that thirty-six hours after birth it is safe for a foal to suck a mare whose colostrum has contained anti-erythrocytic antibody, if the mare has been thoroughly and frequently hand-milked. Apart from the possible presence of antibody in the mare's milk, the possibility in exceptional foals of absorption of antibody from the alimentary tract after 36 hours of age may be a source of danger. When a mare is found to have a colostral indirect agglutination titer of 1/4 or more thirty-six hours after foaling, it is suggested that the foal's erythrocytes should be examined about twenty-four hours after sucking has commenced, to detect early any possible sensitization. Should any sensitization be found, the foal should be kept under observation and be subjected to daily hematological examinations to ensure that any departure from normal blood values is detected as soon as possible.

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Infertility and Herd Management

When about 50 dairy herds in New York State with more than the usual amount of breeding troubles were studied, using a mobile laboratory, faulty management was credited with causing as much breeding difficulty as disease. Important management faults included: failure to detect estrus, breeding too soon after calving, failure to keep breeding records, spreading infection by switching bulls when a cow did not conceive, sending pregnant cows to slaughter because they were believed to be sterile, and failure to call the veterinarian at the first sign of breeding difficulties.

The elimination of brucellosis has uncovered the part played by another disease, *Vibrio fetus* infection. Cows in chronically infected herds show a tendency to have cystic ovaries and sometimes a high incidence of twinning. The losses caused by the infection are more from breeding delays than from abortions.—*Guernsey Breeders J., Nov. 15, 1954.*

Age of Castration and Rate of Gain in Calves

No significant differences occurred in gains made in feedlots or in the carcass quality when calves were castrated at 1 to 7 months of age. However, bulls from the same lot gained significantly faster than the steers and required less feed per unit of gain. Although they were not as well finished, had a lower dressing percentage, and graded lower, the bulls had less fat trim, a higher proportion of edible meat, and the cost of gain per pound was 10 to 12 cents less than in the steers during the 252-day feeding period.—*J. Anim. Sci., Nov. 1954.*

Pyometra in a Bitch

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PYOMETRA IS AN accumulation of pus within a closed uterine cavity.

Bloom[1] states that chronic metritis, pyometritis, hyperplastic endometritis, chronic purulent endometritis, septic metritis, and abscess of the uterus have been erroneously used as synonyms of pyometra in veterinary literature. While in purulent metritis the cervical canal is open, allowing the exudate to discharge freely, pyometra is a collection of pus inside a closed uterus. Pyometra in dogs, according to De Vita,[2] is very common in sexually mature bitches of all ages and it occurs in both virgins and multipara. Lacroix[3] states that pyometra may be observed at any age after the completion of an estrous cycle, although it is most frequently seen in bitches over 6 years old. The following is a case report on pyometra, including the marked lesions found at necropsy.

REPORT OF CASE

On Sept. 2, 1954, a native black-and-white virgin bitch about 12 years old and weighing 20.9 lb. (fig. 1), was referred by another veterinarian for examination and treatment at the hospital of the College of Veterinary Medicine, University of the Philippines, Quezon City. Previously, it was tapped for ascites, but no fluid was aspirated. The abdominal enlargement was observed a week before the dog was submitted to the college hospital.

The bitch vomited water, had complete anorexia, was weak, listless, depressed, and vomited mucus. The mucous membranes were pale, the eyeballs bulged, the coat was rough, and some feces matted the anal region. The pulse was 200; respiration, 28; and temperature 101.7 F. The pear-shaped abdomen changed position when palpated. The abdomen was tense, there was a slight vulvar discharge, and the white blood cell count was 13,680 per cubic millimeter.

With the above history and symptoms, a diagnosis of pyometra was made, and the dog was prepared for ovariohysterectomy the following morning, although an unfavorable prognosis was given, due to the grave condition of the dog.

Fig. 1—A weak, listless, and depressed 12-year-old native virgin bitch suffering from pyometra. Note the pendulous or "pear-shaped" abdomen of this dog.

The next morning the temperature was 100.7 F., and 100 cc. of dextrose, 5 per cent in normal saline solution, was given subcutaneously prior to the operation. Because the animal was weak, 1.2 cc. of sodium pentobarbital was given intravenously as a general anesthetic. Ovariohysterectomy was successfully performed after the proper li-

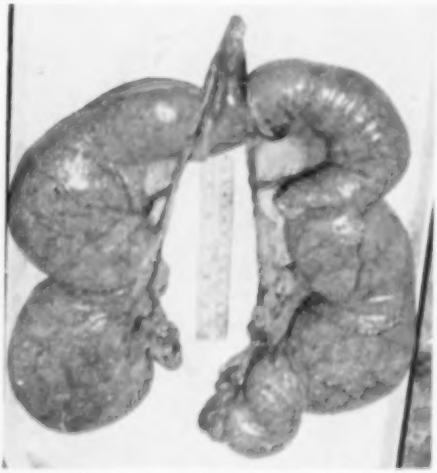

Fig. 2—The ovaries and uterus surgically removed with the septic uterine contents, which weighed 1,495 Gm.

From the Department of Veterinary Medicine and Surgery and Department of Veterinary Pathology and Bacteriology, respectively, College of Veterinary Medicine, University of the Philippines, Quezon City.

gation of the ovarian and uterine blood vessels. The uterine stump was disinfected with tincture of iodine prior to its inversion, using the Parker-Kerr technique. Sulfanilamide powder was dusted on the inverted uterine stump before the abdominal wound was closed.

Strychnarsitol,* 1 cc. subcutaneously, 20 cc. of dextrose, 10 per cent in normal saline solution, intravenously and 80 cc. subcutaneously, and dicrysticin** (400,000 units) intramuscularly were given to the bitch after the operation.

The first day after surgery, the animal was weak, recumbent, and its temperature was 99.5 F. At this time the bitch was given 20 cc. of whole blood intravenously; 100 cc. of dextrose, 10 per cent in normal saline solution, subcutaneously; 1 cc. of 10 per cent camphorated oil intramuscularly; and 5 cc. of 10 per cent calcium gluconate intravenously. The eyes were also washed with 2 per cent boric acid solution, and 5 cc. of greenish urine was obtained on catheterization of the urinary bladder. Her condition worsened and she died September 5.

NECROPSY FINDINGS

The uterus that was removed weighed 1,495 Gm. (fig. 2). The left and right horns were enormously enlarged. The serous surface of the uterus was dark red and the uterine superficial veins were congested and bulging. After twenty-four hours' incubation at 37 C., bacterial culture of the uterus in tryptose broth and agar slant yielded streptococci-like and bacilli-type organisms. At necropsy, the organs showed primary toxic changes.

Perhaps this bitch would have lived if the owner had brought it earlier for examination and treatment.

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*Strychnarsitol is produced by Robin Co., Paris, France.
**Dicrysticin is produced by Squibb and Sons, N. Y.

Vasectomy in the Bull

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Artificial insemination has gained wide usage in dairy and beef cattle. Occasionally, one of the most difficult problems in these herds is finding evidence of the cow being in heat. In some herds of beef cattle, the signs of heat are often obscure and, unless the herdsman is alert and working with the herd continuously, many cows will go through estrus and will not be inseminated.

The use of a vasectomized bull has proved a satisfactory means of identifying cows in estrus. At this clinic (Ohio State University), vasectomy has been performed on 7 young bulls about 1 year of age. It is important to select an unused bull from a known healthy herd, since genital diseases, such as trichomoniasis and vibriosis, may be spread through the herd by the vasectomized animal. This disease-transmitting potential is the greatest hazard in the use of such an animal but those who have used them have felt that the advantages outweighed the disadvantages. The use of vasectomized bulls is not expected to become prevalent but it is one possibility for solving a problem in certain herds.

TECHNIQUE

The surgery may be performed with the bull in either the standing or recumbent position. After operating on 2 bulls in the standing position, it was considered preferable to have the animal restrained on its left side with both hind feet pulled up alongside the abdomen. In this position, the scrotum is entirely exposed. The proximal anterior surface of the scrotum is shaved and the entire scrotum and adjacent abdominal wall is thoroughly washed with soap and water, dried, and swabbed with alcohol. Tincture of merthiolate is applied to the surgical area. Sterile 2 per cent procaine with 200 turbidity units of hyaluronidase per 100 cc. is injected into the skin over the surgical sites, which are located on the anterior surface of the scrotum about ½ inch lateral to, and on each side of, the medium raphe, and extending from the scrotal attachment ventrally for about 3 inches (fig. 1). The testicles and scrotum

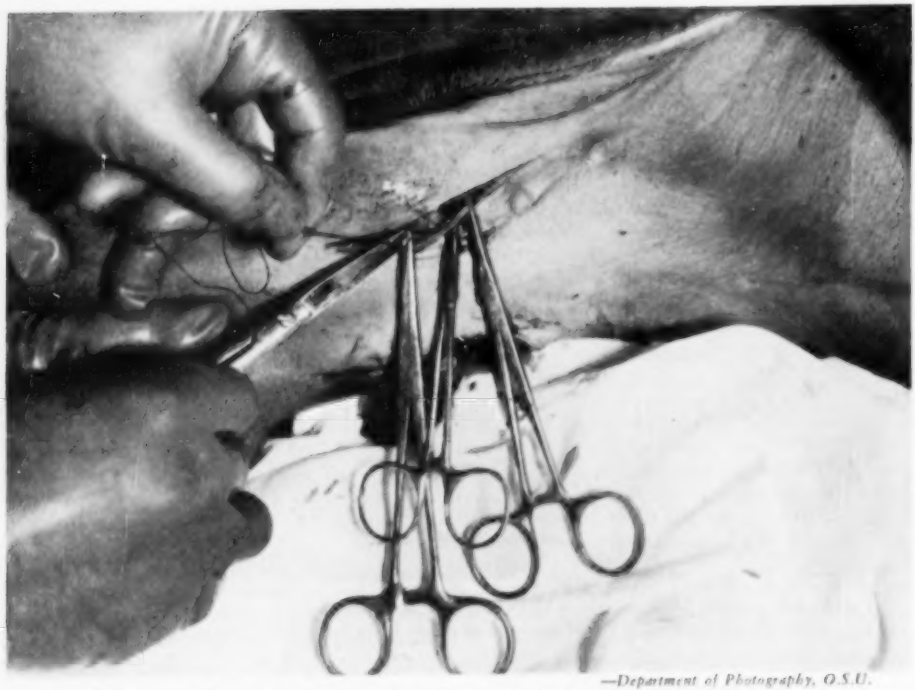
From the College of Veterinary Medicine, Ohio State University, Columbus.

—*Department of Photography, O.S.U.*

Fig. 1—Bull cast on left side with rear limbs extended along abdomen. The surgical preparation has been completed and procaine is being injected into the skin over the surgical site.

—*Department of Photography, O.S.U.*

Fig. 2—The incision has been made over the right spermatic cord, through the skin and tunica vaginalis, and the vas deferens has been picked up with the ligating hook.



—*Department of Photography, O.S.U.*

Fig. 3—The vas deferens is grasped by two forceps, set about 1 inch apart, and is being ligated back of each forceps. The portion between the forceps is then removed.

—*Department of Photography, O.S.U.*

Fig. 4—The vasectomy has been completed. The dermalon sutures will be removed in seven days.

are then grasped by an assistant and enough pull exerted to stretch the skin and spermatic cord tightly to facilitate incision through the skin and tunica vaginalis.

The vas deferens, which can be palpated in the spermatic cord posterior and medial to the other cord structures, is enclosed by a special fold of the tunica vaginalis propria which lies along the posterior surface of the spermatic cord.[1]

The anterior surgical site is preferred since the external cremaster muscle, which is extensive in the bull, almost completely covers the tunic to the neck of the scrotum, and this muscle causes less interference when the anterior approach is used. Once the incision is made through the tunica vaginalis, the vas deferens is identified, picked up with a blunt ligating hook (fig. 2) and, with its fold of tunic, is separated from the other structures of the cord. It has the appearance of running free in the cord and looks similar to the uterine horn of a very young bitch. The vas deferens is then grasped by two pairs of forceps set at least 1 inch apart and a ligature of No. 0 silk is placed back of each forceps (fig. 3). The vas deferens between the forceps is then removed. When the same procedure has been followed on the opposite side, the incisions are closed by means of three cruciate-type stitches using No. 1 dermalon (fig. 4). The sutures are removed in seven days.

The vas deferens can be identified by gross examination but, if desired and a laboratory is available, it can be further identified by histopathological sectioning. Ejaculation by the use of an artificial vagina and microscopic examination of the ejaculate is another possible means of ascertaining the results. Vasectomized bulls seem to retain normal libido and have proved useful in the herds where their service was indicated.

[1]Sisson, S., and Grossman, J. D.: Anatomy of Domestic Animals. 4th ed. W. B. Saunders Co., Philadelphia (1953): 579.

The transplacental migration of *Toxoplasma gondii* was demonstrated when the organisms appeared in the fetal circulation forty-eight hours after their injection into the veins of pregnant rats. Histological examinations of the placentas involved revealed no lesions.—*Vet. Bull., Feb., 1954.*

Foal Colic Relieved by Laparotomy

When a 5-week-old Thoroughbred filly developed a flatulent colic, a trocar used through both flanks brought temporary relief. A few hours later, when pain returned without flatulence, an increased pulse, injected conjunctiva, and a temperature of 103 F. indicated rapid deterioration, and a laparotomy was performed. The foal was given 18 cc. of nembutal[R] with 5 cc. added during the operation. Through an incision of the left flank, manual exploration detected a firm fibrous mass filling half the length of the right dorsal colon. This was broken down by pressure of the fingers and thumb, distributed through the dorsal colon, and the operation was completed. Four hours later the filly started to pass feces which consisted chiefly of the dry stalks and roots of a native grass. She was given penicillin daily for five days and made an uneventful recovery.—*J. South African Vet. M. A., Sept., 1954.*

Dangers in Paravertebral Injections

Recent reports of unfortunate results, including 11 cases of transverse myelitis and two deaths following the paravertebral injection of efocaine in human patients, induced a study of the perineural spaces of the nerves.

A total of 26 lumbar nerves in 11 monkeys under pentobarbital sodium anesthesia were injected intraneurally, 3 to 4 cm. distal to the intervertebral foramen, with 0.5 to 1.5 cc. of efocaine. About thirty minutes later the spinal fluid was found to contain a procaine concentration of 0.2 to 58.0 mg. per 100 cc. All of the monkeys developed some ill effects; a few with leg weakness recovered in a few weeks; others with leg paralysis partially recovered in eight to thirty-one weeks; 2 died from respiratory paralysis during the operation and 1 was kept alive only with a mechanical respirator. In some nerves, there was considerable resistance to the injection with a marked local swelling while, in others, there was no resistance or discernible local swelling. It was found that the less the resistance, the greater the concentration of the efocaine in the spinal fluid and the more severe the clinical effect. Thus, the perineural spaces of the peripheral nerves are actually avenues into the spinal cord.—*J.Am.M.A., Nov. 13, 1954.*

W. W. 49

The Diagnostic Significance of the Agglutination Reaction for Vibriosis in Sheep

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THE QUESTION of the value of the agglutination reaction in determining whether sheep are infected with *Vibrio fetus* arises in sheep practice. Although there have been several published reports on the use of this test in experimental work and as a diagnostic agent in connection with vibriosis of both sheep and cattle, there appears to be a lack of definite information as to the diagnostic value of the test in controlling the disease in sheep. Therefore, it may be useful to report on the significance of the agglutination reaction over a period of years in connection with the investigation of vibriosis in sheep at this laboratory.

REVIEW OF LITERATURE

McFadyean and Stockman in 1913[2] reported agglutination tests of the blood of 4 ewes at the time of abortion produced by inoculation of infective material. The titers varied from 1:10 to 1:1,000. Titers of 1:1,000 were also found in 2 ewes which were inoculated but failed to show any other sign of infection. Welch and Marsh,[10] in 1924, reported an agglutination titer of 1:200 soon after abortion produced by intravenous inoculation, and a titer of 1:20 eleven weeks after abortion. Later, Knuth and David[4] reported a titer of 1:200 following intravenous inoculation, and titers of 1:50 in 9 sheep from an infected flock, while 8 healthy sheep failed to give complete agglutination in any dilutions; Buxton[1] reported titers of 1:16 and 1:32 in 4 aborting ewes and the ram to which they were bred, while serums from 5 normal sheep were negative at 1:8; Ryff[9] reported a test on a flock of 79 ewes, 25 of which had recently aborted, 10 of which agglutinated the Vibrio antigen at 1:100, and 37 at 1:25. Lee and Scrivner[5] obtained titers varying from 1:50 to 1:400 in 7 aborting ewes.

Blakemore and Gledhill[1] reported titers of 1:40 to 1:160 in 5 of 10 ewes two months after abortion; while only 2 of 10 dry ewes in the same flock had a titer of 1:40; and only 1 of 4 ewes which lambed normally had a titer of 1:40. They also found that the titers dropped sharply between fourteen and sixty days after abortion. The titers were higher with homologous than with heterologous antigens.

Levi[6] reported some titers as high as 1:80 and 1:160 in a group of 52 ewes from abortion-free flocks. Of 57 ewes tested after abortion, only 3 had titers below 1:40, while 38 had titers of 1:160 or higher with homologous antigens. With heterologous antigens, 24 of 49 infected ewes failed to react significantly.

Blakemore and Gledhill and Levi conclude that the agglutination test is not satisfactory as a routine method of diagnosis for vibriosis of sheep.

OBSERVATIONS AT THE MONTANA VETERINARY RESEARCH LABORATORY

The agglutination reaction has been used at this laboratory for twenty-five years, in studying natural infections with *V. fetus*, and in comparing different strains by using the serums of immunized rabbits. The methods used have been described in previous publications.[3,7]

Reactions of Ewes Aborting from Natural Infection.—Agglutination tests have been made on 558 ewes which aborted from natural infection. In 139 of these, the blood was drawn within ten weeks after abortion. The other tests were from ewes which had aborted during the preceding March and April, 377 samples being taken in October and 42 in November, about eight months after the ewes aborted. The antigens used were prepared from cultures of strains of *V. fetus* which had been recovered from fetuses aborted in the same flocks as the ewes tested, and were presumably homologous.

In the group tested within ten weeks following abortion, 72 of the 139 serums produced complete agglutination at 1:25, or higher. The highest dilution at which complete agglutination occurred was 1:25 for 24 serums, 1:50 for 33 serums, 1:100 for 11 serums, 1:200 for one, 1:400 for one, and 1:800 for two serums. The higher titers were in the serums which were taken within a few days after abortion.

Of the 377 ewes tested about seven months after abortion, only 14 showed agglutinin titers of 1:50 or higher; 5 reacting at 1:50, 4 at 1:100, 2 at 1:200, 2 at 1:400, and 1 at 1:800. At the same time and from the same flock of sheep, 316 were tested

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which had not aborted. Of this group, 181 lambed normally, 19 had stillborn lambs, 51 were dry, and 65 were unbred yearlings. In this lot of 316, only 3 showed a titer of 1:50 or higher; 1 reacting in 1:50 and 2 at 1:100. In the group of 65 unbred yearlings, no serum agglutinated completely at 1:25.

Of the 42 ewes tested about eight months after abortion, 3 showed a titer of 1:25 and 2 a titer of 1:50. A group of 50 unbred yearlings from another flock were tested at the same time and with the same antigen, none of them showing complete aggultination at 1:25.

Of 53 blood samples taken at random from a band of ewes in which abortions were occurring at a 25 per cent rate, 9 agglutinated *V. fetus* completely at 1:50 to 1:200, and 3 at 1:25. Of 314 serums taken at about the same time from four flocks having no history of vibriosis, none agglutinated completely at 1:25.

Reactions of Ewes Inoculated Intravenously.—In experimental work with *V. fetus* at this laboratory, 43 ewes have been inoculated intravenously with cultures, 35 presumably being pregnant at the time of inoculation, while 4 were inoculated one month before being bred, and 4 at the time they were bred.

Of the 35 which were supposedly pregnant, 28 developed agglutinin titers varying from 1:25 to 1:800, while 4 of the 7 which developed no agglutinins did not lamb or abort. They probably were not pregnant when inoculated and did not become infected.

Of the 4 ewes inoculated intravenously during estrus, about thirty-four days before breeding, 3 developed agglutinin titers varying from 1:25 to 1:200. Of the 4 inoculated at the time of breeding, 3 developed no agglutinins while 1 showed a titer of 1:25.

Reactions of Ewes Inoculated at the Os Uteri at Time of Breeding.—Thirty-six ewes were inoculated at the time of breeding by depositing cultures of *V. fetus* at the os uteri either immediately before or immediately after copulation. Only 4 of 36 developed agglutinins, 2 at a titer of 1:50, 1 at 1:100, and 1 at 1:1,600. These ewes showed no other clinical evidence of infection.

Reactions of Ewes Fed Cultures Orally.—Of 20 ewes which were assumed to be pregnant and were fed cultures of *V. fetus*, 6 developed agglutinins varying in titer from 1:25 to 1:100. In none of these ewes was there any other clinical evidence of infection.

Reactions of Ewes Fed Material from Aborting Ewes.—Of 7 pregnant ewes fed infective material from the placenta of aborting ewes, 2 developed agglutinins in a titer of 1:50 and 1 a titer of 1:200.

Reactions of Rams.—Agglutination tests have been applied to blood serums from 36 rams in the Montana Experiment Station flock, and 105 rams at the U. S. Sheep Experiment Station at Dubois, Idaho.

At the Montana Station, 14 rams which had been used in the fall of 1942 to breed a band of ewes, many of which had aborted in 1942, were tested in January, 1943. Slight agglutination occurred in low titers in 8 cases, but only 1 as high as 1:25. Eight rams, used where abortions had not occurred, tested completely negative at 1:25.

Of 14 rams tested during the breeding seasons of 1952 and 1953, none were completely negative at 1:25, 2 had a titer of 1:50, and 2 of 1:100. The possible relation of these titers to infection or to infected ewes is not known. There were a few vibrionic abortions in the flock in which the rams were used in 1952, but none in 1953.

Blood serums from the 105 rams at the U. S. Sheep Experiment Station were tested in May, 1954, none showing more than a slight reaction at 1:25. In 1952, there had been a heavy loss from vibrionic abortion at that station, but none in 1953 or 1954.

In experimental work with rams, agglutinins have been produced by inoculation of cultures. Intravenous inoculation of 2 rams produced titers of 1:800 and 1:200. Intratesticular inoculation of 4 rams produced titers of 1:25, 1:50, 1:200, and 1:3,200. Inoculation into the preputial space of 1 ram did not produce agglutinins.

Persistence of Agglutinins.—Our general observation has been that the agglutinins produced in ewes as the result of infection with *V. fetus* disappear rapidly following the expulsion of the fetus. For evidence on this point, groups of sheep have been selected for which there are records of repeated tests.

In 1952, agglutination tests were made on serums collected May 5 from 46 ewes which had aborted about two months be-

fore; 25 of the 46 showing titers of 1:50 or higher, and 7 of 1:25. These sheep were not tested earlier and, therefore, their titers at the time of abortion are not known. The 25 which had titers of 1:50 or higher were tested again on July 1, when 19 of the 25 showed reduced titers, 8 having become completely negative. Nine of the ewes which showed some reaction on July 1 were tested again on December 2, when 8 of the 9 were completely negative.

In 1942, repeated agglutination tests were made on 8 ewes which aborted in the small flock maintained by the Veterinary Research Laboratory. None of the 8 ewes developed a high titer, the titers immediately after abortion ranging between 1:25 and 1:100. At thirty days after abortion, there was no titer above 1:25, and at ninety days, 5 of the 8 ewes were completely negative at 1:25.

In 1952, 3 ewes aborted in the flock of the Veterinary Research Laboratory. Two of them had agglutinin titers of 1:800 immediately after abortion, while the third showed a titer of 1:100. These ewes showed only slight decreases in titer in the first sixty days, but in ninety days were down to 1:25 and 1:50. One had an insignificant titer of partial agglutination at 1:25 five months after abortion. Another, which had a titer of 1:800 immediately after abortion levelled off at 1:100 at five and seven months after abortion.

In the fall of 1952, 416 ewes from the U. S. Sheep Experiment Station, which had aborted 7 or 8 months previously, were tested for agglutinins with only 51 of the 416 showing a titer of 1:25 or higher. The 16 with a titer of 1:50 or higher were retested June 1, 1953, when 14 showed a decrease, only 4 of the 14 reacting at 1:50. Two ewes which had a titer of 1:200 in October, 1952, retained this titer in June, 1953. One still showed a titer of 1:200 in October, 1953, when killed for bacteriological examination, the result of which was negative. The other ewe had dropped to 1:100 in November, 1953, when she was bred again. When she lambed in April, her titer was only 1:25, and was less than 1:25 in July, 1954.

Repeated agglutination tests made of the serums of 27 pregnant ewes which had been inoculated intravenously revealed a somewhat varied pattern. The titers produced by intravenous inoculation have not been high as a rule, varying from 1:25 to 1:800. Of the 27 ewes inoculated, 4 failed to develop a titer higher than 1:25, 7 showed a 1:50 titer; 6 went to 1:100; 6 showed 1:200; 3 went to 1:400; and 1 developed a titer of 1:800. In 18 of the 27, the agglutinin titer reached its peak one to three weeks following inoculation, and had decreased to less than 1:25 within four to eight weeks in most cases; but the other 9 ewes retained titers of 1:50 or 1:100 for periods varying from seven months to three years.

Rams inoculated either intravenously or into the generative organs showed a pattern of agglutinin titers somewhat similar to that of the inoculated ewes. Two rams inoculated intravenously and 2 inoculated in the testicle developed titers of 1:200 to 1:1,600 in seven to nine days. Their titers dropped somewhat in one month and in ten weeks the titers of 3 of these 4 rams were down to 1:25 and 1:50. One of the 4 rams which originally reacted at 1:1,600 was held for two years and four months and retained a titer of 1:200.

Significant Titers.—As a result of agglutination tests on a large number of sheep, it is our opinion that, in general, titers lower than 1:50 can not be taken as indicative of infection. The significant titer could possibly be dropped to 1:25, as complete agglutination at 1:25 is rare in sheep presumed to be free from exposure. Sheep considered free from infection frequently show partial agglutination at 1:25 and sometimes a trace agglutination at 1:50.

In judging the significance of low titer agglutination, the sensitivity of the antigen must be taken into consideration. It has been found that some strains of *V. fetus* are not satisfactory for antigen production because they produce an antigen which is too sensitive.

DISCUSSION

The general conclusions from the data presented here and from miscellaneous observations are: that the production of agglutinins by sheep infected with *V. fetus* is variable in amount; that the titer decreases rather rapidly after expulsion of the fetus in most cases; that at the time of the breeding season about 95 per cent of the sheep that were infected in their last pregnancy will have lost any significant titer; and that

titers of less than 1:50 are of doubtful significance.

It is also recognized that there are several serological types of *V. fetus* and that the antigen used for testing a serum must be prepared from a strain of the type involved in the outbreak being investigated. In this connection, we have, in at least two instances, isolated strains of two serological types from sheep in one flock in the same season.

In view of these facts, the agglutination test appears to be of limited value as a diagnostic agent. It does have value as a diagnostic aid, the results of the test usually being obtained more quickly than the results of the cultures. Of greater value in an outbreak of abortion are the fetuses which are almost always available for bacteriological diagnosis in the laboratory.

If it appeared to be practical, an agglutination test on a band of ewes in which abortions are occurring could be used to cut the reactors into a separate lot, in order to reduce the exposure from expected abortions.

As a means of determining at breeding time whether a lot of ewes had been infected during the previous pregnancy, the test would be of little value. In fact, the information available at this time indicates that ewes which have been infected lose both the infection and the agglutinins before the next breeding season, and that in the small percentage of cases in which agglutinins persist, the ewes are free from infection.

SUMMARY

Agglutination tests on a large number of sheep which have been infected both naturally and artificially with *Vibrio fetus* show that agglutinins in varying amounts, often in low titers, are usually present in the blood serum in the acute stage of the infection; that, in most cases, they decrease rather rapidly after expulsion of the fetus; and that 95 per cent of aborting ewes are negative to the agglutination test before the next breeding season. It is concluded that the agglutination test has only a limited application in the practical control of vibriosis of sheep.

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Milk as a Diluter for Bovine Semen

Two field trials with over 13,000 first-service cows revealed no significant difference in the fertility rate, whether the semen of high fertility bulls was diluted with heated homogenized milk—with or without cornstarch, with heated skimmilk, or with egg yolk citrate. However, with low fertility bulls, there was a higher fertility rate when semen was diluted with heated milk than with egg yolk citrate. Penicillin and streptomycin were added routinely in each case.—*J. Dai. Sci., Nov., 1954.*

Presurgical Intestinal Flora Control

Tests made in Denmark with various antibiotics for the reduction of intestinal flora prior to surgery in man indicated that bacitracin and neomycin were a promising combination. Little is resorbed and together they have a spectrum that covers the usual bacterial flora. The recommended dosage is 3 Gm. of bacitracin and 3 Gm. of neomycin daily for three days.—*J.Am.M.A., Dec. 11, 1954.*

Fracture of an Equine Mandible

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According to Möller and Dollar,[1] "Of all the bones of the head, the under jaw is the most frequent seat of fracture: this is true of all classes of animals, and notably of the horse." They continue, "Transverse fractures of the body are difficult to set, and sometimes eventuate in formation of a callus fibrosus with sinking of the alveolar margin and protrusion of the tongue."

Because of its frequent occurrence in horses, due to some form of external violence, one technique for fixation of mandibular fractures is described.

A 2-year-old Quarter horse gelding in excellent condition had been kept alone in a small corral. The fracture, which the owner could not account for, allowed all the lower incisor teeth to protrude and to deviate ventrally at an angle of 25 degrees from their normal position.

The gate to the corral was closed with a heavy chain about 18 inches from the top pipe, that had several inches of slack in it. The colt was in the habit of reaching over the top pipe, playing with the chain, and bridling it in his mouth. While doing this, he must have become frightened and, when he suddenly pulled back, fractured his jaw.

The fracture was transverse, just posterior to the body of the mandible, and involved both rami. It was bilaterally compound and had occurred about six hours before the horse was presented for treatment.

Technique.—Debridement and cleansing of the mucous membrane wounds and the exposed rami was accomplished with twitch restraint and a bilateral mandibular nerve block. The colt was then anesthetized with magnesium sulfate and chloral hydrate and secured in lateral recumbency. Restoring the mandible to its normal position was difficult because of swelling and blood clots, but good apposition was obtained by forcing the mandibular body anteriorly and dorsally at the same time. Fixation was accomplished by using three stainless steel intramedullary pins and two pin bars (fig. 1). The first pin was forced posteriorly through the body of the mandible, about ½ inch below the second left incisor tooth, across the fracture and into the medulla of the left ramus, parallel to its ventral border. The same procedure was followed in pinning the right side. The third pin was placed transversely through both rami ½

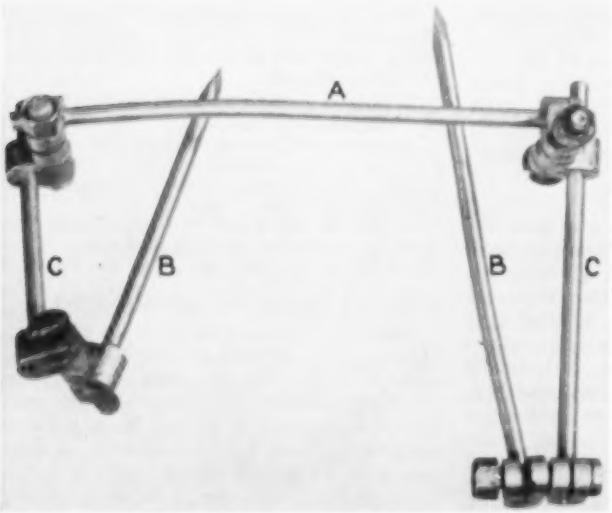

Fig. 1—The reassembled appliance used to repair a fractured mandible in a horse showing (a) the transverse pin which is longest, (b) the two intramedullary pins with sharpened points, and (c) the two lateral pin bars. Notice the double-triangle effect which probably accounted for the extreme rigidity of this appliance.

Dr. Burger, Bakersfield, Calif., practice limited to horses.

[1]Möller, H., and Dollar, A. W.: Regional Veterinary Surgery. William R. Jenkins Company, New York, 1908.

Fig. 2—The left pin bar in place in the fractured mandible. It is attached posteriorly to the transverse pin and anteriorly to the left intramedullary pin.

inch posterior to the fractures. A pin bar was then connected from the transverse pin to the longitudinal pin on the left side (fig. 2) and a second pin bar was then connected in a similar manner on the right side.

Postoperative Care.—The colt was then cross-tied in a box stall and for one day was fed through a stomach tube; however, he thereafter resisted the passage of the stomach tube, so was allowed to drink a thin gruel made up of water, calf meal, sugar, and salt. Because he drank water well, he did not become dehydrated or lose much weight during the three weeks the pins were kept in place. After the fifth day, he was fed small amounts of clean alfalfa hay, after which his mouth was thoroughly rinsed with a hose and running water. The bone remained exposed near the fracture for about two weeks. It was treated at first with a sulfa urea solution and later with scarlet oil.

For three days following the fixation, 2 Gm. of dihydrostreptomycin sulfate and 2 million units of crystalline procaine penicillin were given twice daily. He also received 1,500 units of tetanus antitoxin the day of the fracture, and a similar dose seven days later. The pins were removed after three weeks (fig. 3).

Discussion.—The prompt treatment and excellent physical condition of the patient were prime factors in the successful repair of this fracture (fig. 4).

Fig. 3—The occlusion obtained after the removal of the pins from the mandible of the horse. Notice the holes below the middle incisors made by the intramedullary pins.

Fig. 4—Two days after removal of the appliance, the colt ate coarse hay with no sign of tenderness.

The cross-tying night and day for the three weeks that the pins were in place, and for two days after their removal, was essential to prevent disalignment by rubbing the attachment on the wall or on his legs.

Listeria Monocytogenes and Abortion in a Cow

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FOR THE PAST two decades *Listeria monocytogenes* has been known to be capable of producing the death and abortion of fetuses, as well as the death of newborn animals of various species.

REVIEW OF LITERATURE

Burn[1] reported the isolation of *L. monocytogenes* from two human infants who died during the first thirty-six hours of life; one infant was born three weeks prematurely. Vaginal swabs of the mother of the full-term infant taken eight days postpartum failed to show the presence of Listeria. Focal necroses of the liver and lungs were the primary lesions.

Graham, Hester, and Levine[2] first reported the isolation of *L. monocytogenes* from an aborted bovine fetus. The dam was unavailable for culture. The culture from the fetus was inoculated intravenously into a pregnant heifer and produced abortion in ten days.

Paterson,[3] in England, isolated *L. monocytogenes* from aborted ovine fetuses. Attempts to recover the organism by cervical swabs of the dams, several days after abortion, failed. The organism could not be isolated from the uteri of dams killed one month or more after abortion. Oral administration of cultures of Listeria failed to produce infection in pregnant ewes, but intravenous challenge with Paterson's original culture and Graham's culture produced abortion in all instances. *Listeria monocytogenes* was isolated from the uteri of ewes slaughtered immediately after abortion, but the organism could not be recovered from the uteri of ewes killed twenty-one days after abortion.

Harbour[4] in North Wales recovered *L. monocytogenes* from a calf with scours, which died nine days after birth. The chief lesions were focal liver necrosis and ulcerative enteritis.

Evans and Sawyer[5] isolated *L. monocytogenes* from a bovine fetus which showed extreme decomposition at the time of abortion. The dam was unavailable for culture. The herd involved was brucellosis-free, but several abortions of undetermined cause had occurred previously.

Poppensiek[6] recovered *L. monocytogenes* from an aborted ovine fetus. No symptoms other than abortion appeared in the dam. A 4-year-old Aberdeen Angus cow sharing the same pasture with the sheep showed involvement of the central nervous system thirty-six days later. Listeriosis was diagnosed in the cow on the basis of cultures, animal inoculation, and histopathological examination.

Olson[7,14] isolated *L. monocytogenes* from 7 animals (6 cows and 1 sheep). All recoveries occurred in the course of routine laboratory work, and the dams were unavailable for further study. Of the 6 bovine fetuses the age at the time of abortion was 8½, 6, 6, and 4 months, with the ages of 2 unknown. The organism was recovered in 2 cases from fetal membranes, in 2 cases from the fetal intestine, and in 2 cases from both fetal membranes and intestine.

Gray, Nelson, and Thorp[8] recovered *L. monocytogenes* from the liver of an 8-day-old lamb that showed focal necrosis.

Ferguson, Bohl, and Ingalls[9] isolated the organism from 2 bovine fetuses in different herds with an interval of two years between isolations. Injury in 1 animal and malnutrition in the other appeared to be predisposing factors.

Van Dorssen and Jansen[10] isolated *L. monocytogenes* from 4 fetuses, but the species involved was not indicated in the summary.

Levi *et al.*[11] recovered the organism from 2 bovine fetuses. The dam of 1 was slaughtered two and one-half months after abortion, and *L. monocytogenes* was isolated from the ovary of the pregnant horn.

Eveleth *et al.*[12] reported the isolation of *L. monocytogenes* from 2 bovine fetuses. The dam of 1 had contact with infected sheep, and the dam of the other had been in contact with a cow that showed the nervous symptoms of listeriosis.

Stockon *et al.*[13] isolated *L. monocytogenes* from the aborted bovine fetus of a 9-year-old cow that had previously delivered 6 normal calves. No history of herd infection could be determined.

CASE REPORT

The report that follows describes another case of bovine abortion due to *L. monocytogenes*.

History.—A 3-year-old Holstein-Friesian heifer in the University (Massachusetts) herd calved uneventfully for the first time on Aug. 21, 1953. She was rebred on Nov. 11, 1953, and conceived on the first service. On April 27, 1954, she developed a foot infection and was successfully treated with penicillin intramuscularly. On May 12, clinical mastitis was reported, and *Streptococcus uberis* was recovered from milk samples.

While backing out of the stanchion on May 17, she fell heavily for no apparent reason. The attendant reported that clear mucous vaginal dis-

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charge, streaked with a little blood, appeared directly afterward and that the heifer was immediately isolated. The heifer aborted 1 fetus four and one half hours after falling and a second fetus sometime during the following night with no one in attendance. The fetuses presented to the laboratory on the morning of May 18 showed extreme decomposition indicating death a few days prior to abortion.

Clinical Picture.—The heifer was first seen on May 19, 1954, when the attendant reported a temperature of 105.6 F. He stated that earlier the heifer was found in lateral recumbency, groaning, and straining severely in an apparent attempt to expel the placentas.

The animal appeared somewhat depressed, but otherwise showed no alarming symptoms. Treatment consisted of penicillin-in-oil, 3 million units, intramuscularly.

On May 20, the temperature had dropped to 101.4 F. The placenta of the left horn was removed manually. The cotyledons were extremely decomposed and had a pasty yellow appearance. During manual removal, the cow strained excessively and fell, but regained her feet somewhat awkwardly when encouraged. The placenta of the right horn was still firmly attached, and no attempt was made to remove it manually. Uterine medication consisted of sulfa-urea boluses in each horn.

When *L. monocytogenes* was recovered from the fetuses in pure culture on May 21, a diagnosis of listeriosis was made. The heifer was held in strict isolation, and the attendants were cautioned against the danger of human infection. The milk was discarded and the manure and bedding buried. Symptoms reported on this date by the attendant were tenesmus, falling while moving across box stall, and staring at the ceiling occasionally. From May 22 through June 2 the following symptoms appeared in order: salivation, ears cocked alternately, putrid vaginal discharge from retained placenta, lacrimation, purulent nasal discharge, grinding of teeth, hypersensitivity of skin at random spots, and cocking of head as if listening.

On June 2, the heifer was killed, and appeared clinically normal except for a serous nasal discharge and a purulent vaginal discharge.

The milk production chart indicated that the heifer was producing at the 25-lb. level in mid-April. A sudden drop to 8 lb., caused by the foot infection, occurred on April 28, with a later return to the 25-lb. level. Another drop to 13 lb. occurred the day after abortion, followed by a gradual rise to the 35-lb. level at the time of slaughter.

Postmortem of Fetuses.—The 6-month twin female fetuses were normal in size and development. Both were reddened in appearance with the abdomen enlarged and flaccid. Decomposition, although advanced, was without odor. Gelatinous infiltration was present between the muscles and about the parenchymatous organs. The latter were extremely friable and of a uniform salmon color. Pleural and peritoneal fluids showed a small amount of yellow flocculent material which was not identified.

Postmortem of Dam.—Necropsy of the heifer was essentially negative. The right uterine horn, from which the placenta was not removed, was somewhat distended from accumulated pus, but generally of good tone. No remnants of the placenta were recognized.

Cultures were taken of spinal fluid, uterine pus, ovary (follicular fluid), spleen, kidney, liver, and the medulla oblongata. Ovaries, uterine tissue, and the brain stem were refrigerated for further study.

Sections of uterine tissue, cervical cord, medulla, spleen, liver, and kidney were submitted for histopathological examination.

Histopathology.—Kidney sections from both fetuses showed advanced decomposition without cellular reaction. Masses of slender, rather uniform, gram-positive bacterial rods, 1 to 2 μ in length, and resembling *L. monocytogenes* were seen in the necrotic debris.

In the dam, sections of the uterus indicated acute endometritis, but with no marked involvement or necrosis present. Organisms were absent. The medulla and other sections from the dam showed no significant pathological changes.

Bacteriology — Fetuses.—Cultures were taken from abomasal fluid, kidney, and peritoneal fluid of both fetuses and placed on chicken infusion plates and in thiol broth. The organism was recovered in pure culture from all six sources.

Morphologically, the organism was a small, straight, gram-positive rod arranged parallel, in pairs and short chains, and in groups of palisades. It was actively motile at room temperature and sluggishly motile

at 37 C. No pleomorphism was observed.

Colonies on plating mediums were small, smooth, and entire; they were translucent bluish gray by transmitted light, and colorless by reflected light, on chicken infusion agar plates; hemolysis on blood agar was of the *alpha* type on original cultures, becoming *beta* in subcultures; tellurite (0.05 %) agar produced medium-sized, black, smooth colonies.

Chicken infusion broth cultures were uniformly turbid but no pellicles or sediment were found. MRVP* broth cultures showed heavier growth in twenty-four hours, and a granular sediment was observed in all tubes.

Biochemically, the following reactions were noted: Acid was produced in dextrose and salicin in twenty-four hours, and in maltose and lactose in seventy-two hours; xylose showed a slight acid reaction after six days; sucrose, dulcitol, and mannitol were not fermented after fourteen days; no gas production was observed at any time in the fermentation tubes; the organism did not split urea or produce indol, hydrogen, sulfide, or acetyl-methyl carbinol; it did not liquefy gelatin after fourteen days. The methyl red test was positive after five days. Cultures were catalase-positive. Litmus milk was slightly acid after ten days; the milk was not completely reduced and did not coagulate. Nitrates were not reduced.

The organism was identified as *L. monocytogenes* on the basis of its conformity in morphology, motility, and cultural characteristics to the requirements set forth by Bergey[18] and Merchant.[19]

Conjunctival inoculation of a rabbit with the culture produced a severe purulent conjunctivitis in forty-eight hours. Comparison of blood films made prior to and after the inoculation showed a definite monocytosis, with an increase in monocytes from 7 to 20 per cent. Smears of the conjunctival pus demonstrated a large percentage of monocytes. Fourteen days after inoculation, cultures of the conjunctiva yielded the organism in pure culture.

Bacteriology — Dam.—Cultures of the dam taken antemortem included samples of milk from each quarter, vaginal swabs taken at seven and ten days after abortion, and a blood culture taken two weeks after abortion. No Listeria were recovered from these cultures at any time. The milk samples showed *Streptococcus uberis* in three quarters, and the fourth sample yielded a coliform organism. The vaginal cultures showed a coliform and a nonmotile Corynebacterium-like organism.

Postmortem cultures were taken directly from the spinal fluid, spleen, kidney, liver, follicular fluid of the left ovary, brain, and uterine pus. There was no growth from any of the cultures except those of uterine pus, which yielded *Str. uberis*.

The ovaries, uterine tissue, and medulla were retained for further culture. Each tissue was emulsified in 100 cc. of tryptose broth and divided into 50-cc. portions, one stored at room temperature and one at 4 C. Periodic cultures of these materials up to 110 days after emulsification have been negative for Listeria.

Serology.—The culture isolated from one fetal kidney was used as the antigen. It was grown on chicken infusion agar at 37 C. for forty-eight hours, and was harvested by glass bead technique using 0.3 per cent formalin in 0.85 per cent saline. The cells were washed twice and resuspended in the formalinized saline. The reaction of the suspension was pH 6.8. A heavy milky suspension was prepared for the plate test, and a slightly turbid suspension was prepared for the tube-agglutination test.

Three serums were tested, their sources being: (1) the bovine dam two weeks after abortion, (2) the rabbit four weeks after conjunctival inoculation with *L. monocytogenes*, and (3) a rabbit known to be free of the organism.

A rapid slide-agglutination test was carried out using a loop of the serum in a drop of the heavy suspension. The serum from the recovered rabbit agglutinated the antigen within two minutes, but the bovine serum and the serum of the control rabbit failed to agglutinate the antigen.

TABLE 1—Results of the Tube-Agglutination Test on Serums of the Bovine Dam and the Recovered and Control Rabbits

	Serum dilution									
Animal	10	20	40	80	160	320	640	1,280	2,560	5,120
Recovered rabbit	—	—	—	—	+	+	+	+	—	—
Control rabbit	+	—	—	—	—	—	—	—	—	—
Bovine dam	—	—	—	—	—	—	—	—	—	—

+ = Agglutination; — = no agglutination.

*M.R.-V.P. (Difco) is methyl red-Voges-Proskauer broth medium.

A twofold serial dilution tube-agglutination test was carried out with each of the three serums using the described antigen. (The final serum dilution in the first tube was 1:10, second tube 1:20, third tube 1:40, etc.) The tubes were incubated at 37 C. for twenty-four hours before reading. The results of the tube-agglutination test are given in table 1.

DISCUSSION

From the literature available, listeriosis characterized by abortion appears usually as a sporadic infection, but occasionally several animals may be involved.[3]

The cows involved are usually described as heifers, but Stockton *et al.*[13] reported listeriosis in a 9-year-old cow with 6 previous normal calves. The case reported here was a first-calf, 3-year-old heifer.

Eveleth *et al.*[12] described the occurrence of listeriosis and vibriosis in the same herds. Vibriosis is the most frequent cause of abortion in heifers in the University of Massachusetts herd, which is brucellosis-free.

Ferguson *et al.*[9] suspected injury in 1 cow as a possible predisposing factor to abortion. In the present case, injury (falling) was followed within a few hours by abortion, but the extreme decomposition in the fetuses indicated that their death occurred a few days prior to abortion. The fall, as reported by the attendant, was sudden, severe, and occurred for no apparent reason which, when considered with the incoordination during the next two days, seems to point toward involvement of the central nervous system. This cow had developed a foot infection three weeks prior to abortion and had been treated successfully with penicillin. It seems possible that Listeria might have gained entrance through this lesion.

Symptoms in the dam which resembled those reported in the encephalitic form of listeriosis were incoordination (falling), salivation, lacrimation, and purulent nasal discharge. At no time did circling appear as a symptom. How much early treatment with penicillin and sulfonamides interfered with the appearance of symptoms and lesions, or contributed to the recovery of this heifer, is unknown. Recovery of aborting dams with or without treatment seems usual. However, this is the only reported case where other symptoms of listeriosis occurred concurrently with abortion.

Although no Listeria could be recovered from the dam, antemortem or postmortem, only one investigator[11] has been able to isolate *L. monocytogenes* from the dam several days after abortion. Paterson[3] recovered the organism from the uterus of experimentally infected ewes only when they were slaughtered immediately after abortion. Since a diagnosis of listeriosis in this case followed attempts at manual removal of the placentas plus uterine medication, uterine cultures were not attempted immediately. Cultures of the vaginal discharge arising from the retained placenta and taken at seven days and again at ten days after abortion failed to reveal Listeria.

TABLE 2—Characteristics that Distinguish Listeria Monocytogenes from Other Organisms

	Requires blood, serum, or tissue for growth	Maltose	Sucrose	Salicin	Nitrites	Methyl red	Motility
Listeria monocytogenes	−	+	+	+	−	+	+
Erysipelothrix rhusiopathiae	−	−	−	−	+	−	−
Corynebacterium pyogenes	+	+	+	−	−	−	−

Postmortem examination of the dam showed no gross or microscopic lesions that would support symptoms other than abortion. The organism isolated in pure culture from the uterine pus at necropsy was identical with that isolated from three quarters of the cow's udder prior to abortion, and was identified as *Str. uberis*.

The purpose of the serological work was to determine whether agglutinins of the organism were present in the bovine dam, since attempts at isolation of the organism had been unsuccessful. No agglutinins were demonstrated in her serum. Other workers[15,16] have noted that two or more antigenic strains of *L. monocytogenes* may exist. If that is the case, a polyvalent antigen might be devised that would be of value in field diagnosis by the rapid plate method.

The pro-zone phenomenon noted in the tube-agglutination test with the recovered rabbit's serum has been observed earlier.[17] It is believed that the agglutination seen in

the first tube of the control rabbit's serum is a false positive.

The extreme decomposition of the fetuses at the time of abortion coincides with the description given by Evans and Sawyer.[3]

The period during gestation at which bovine fetuses infected with *L. monocytogenes* are usually aborted ranges from four to eight and one-half months.[2,3,9,11,13,14] Abortion in sheep appears to occur late in the gestation period.[5,6] In this case, abortion occurred at six months. Because of the occasional report of listeriosis in newborn animals,[1,6,8] it appears that prenatal infection of the newborn is possible. In the uterus, any infection that gained entrance to tributaries of the umbilical vein in the placenta would be taken directly to the fetal liver. The most commonly reported lesion in newborn animals is focal necrosis of the liver.[1,6,8]

Isolation of the organism from the fetus seems possible from almost any organ. The most frequent site reported is abomasal fluid, but isolations have also been made from the intestine, kidney, peritoneal fluid, fetal membranes and, in 1 case, from all parts of the fetus.[8]

Characteristics that best distinguish *L. monocytogenes* from *Corynebacterium pyogenes* and *Erysipelothrix rhusiopathiae* are noted in table 2. Rabbit inoculation provides an additional method for differentiating Listeria from other organisms. Conjunctival inoculation produces a typical purulent conjunctivitis with a definite monocytosis in the peripheral blood.

SUMMARY

A case of bovine abortion caused by *Listeria monocytogenes* is reported. The dam showed initial symptoms that indicated development of the encephalitic type of listeriosis. The organism, however, was not isolated from the dam, nor did any gross or microscopic pathology support symptoms other than abortion. Antibody response to infection was not apparent in the cow.

How much early treatment interfered with the development of further symptoms and lesions, the recovery of the organism, the demonstration of antibodies, or promoted recovery of the dam is unknown.

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CLINICAL DATA

Use of the Chicken Embryo Technique for Diagnosis of Psittacosis in Avian Hosts, with Epidemiological Notes

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IT HAS BEEN KNOWN for over twenty years that psittacosis virus will grow in chicken embryos. Burnet and Rountree[1] and Fortner and Pfaffenberg[2] appear to be the first to have demonstrated this and, since then, many have used the technique as a means of studying the growth of the virus or of investigating serological or vaccine production problems.

Lazarus and Meyer[3] reported on the growth on chicken embryo chorioallantoic membrane (c.a.m.) and found that, with adequate dosage, embryos died in about three to four days after an adaptation period of ten to 14 passages. They observed that undiluted c.a.m. inoculums (infected area of c.a.m. shaken with 2 lots of 2 ml. of saline) resulted in the death of embryos in three to four days; 1:100 dilution of the same inoculums, five to six days; 1:1,000, six to eight days; and if more dilute, the embryos hatched. With egg-adapted strains, if infection occurred, death resulted. Yanamura and Meyer[4] state that this virus is readily propagated in the yolk sac of embryos. Meyer and Eddie[5] report that "all psittacosis viruses grow readily (in the chicken embryo) when inoculated by the appropriate route." In reference to the chicken embryo, Rake[6] states that it may be less susceptible than the mouse for primary isolation and refers to Wall's[7] work on lymphogranuloma. Then he adds that "once the (psittacosis) agent has been established in the laboratory, yolk sac inoculation will detect virus in concentration at least one-tenth of that which can be detected by any infection in mice." Embryo culture also has a factor of "relative safety"[8] as compared with mammalian propagation. Nevertheless, the laboratory mouse has continued to be recommended as the subject of choice for diagnostic isolation of virus[9,10,11,6] despite the necessity for "extreme precautions to avoid false positive findings"[6] from a spontaneous, latent, psittacosis-like infection in mice[12] and a somewhat greater danger of human exposure.

This opinion may have developed as a result of the demonstration by Krumwiede *et al.*[13] of the high susceptibility of mice to psittacosis, together with the report of others that the c.a.m. of embryos was less susceptible.[1,4,10] We are not aware of any published results of a direct comparison of the use of six-day chicken embryo yolk sac inoculations and of mice for diagnostic purposes.

Our laboratory was originally established for the "study of the diseases and parasites of poultry," and the policy has been to examine "anything with feathers." Until recently, the number of cage birds has been insignificant, but with the increased popularity of the parakeet, relatively many more of these were presented. Chicken embryo techniques for virus culture have been used in this laboratory for many years; mice are not maintained. Hence, when it became necessary to make diagnoses of ornithosis-like conditions in birds, it was a matter of some interest to see to what extent the virus could be recovered in embryos.

MATERIALS AND METHODS

The specimens examined all were some species of bird and came from a variety of sources. Some came from breeders who were having difficulty raising young birds; from persons whose pets had become ill; from various state and local health authorities; and some were examined at the request of physicians attending a sick human being. Some were alive, some recently dead, some in the early stages of decomposition, and 1 bird had been wrapped in tinfoil and buried for two weeks before presentation. However, this last case occurred during the winter, and we were successful in recovering the virus (case 43168).

The routine ultimately adopted was to submerge the specimen in a quaternary ammonium solution, allow it to drain, and then open it on several thicknesses of paper or cardboard which were burned along with the carcass when the autopsy was completed. Particular effort was made to observe the size and condition of the liver, spleen, and pericardial sac and the presence of diarrhea as shown by soiled vent feathers. Bacterial cultures on nutrient agar were routinely made from the liver and spleen, and tissues from these organs were collected in a tube and frozen for virus ex-

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TABLE I—Summary of Data on Cases Examined for Psittacosis

Case No.	Date	Species	No. birds in consignment	Postmortem	Virus examination					
					No. birds examined	Material examined	Virus recovered	Case diagnosed psittacosis	Initial inoculum treatment	First passage age of embyro
	1952									
36561	3/25	Parakeet	4	L&S[1] swollen	2	L-1	+	+	P&S[2]	6
						S-1	—	...	P&S	6&10
						Bone marrow-1	+	...		6&10
						L-2	+	...	P&S	6&10
						Brain-2	+	...		6&10
36695	4/11	Parakeet	1	L&S swollen	1	L&S	?	+	P&S	10
None	4/15	Parakeet	1	L&S swollen	1	L&S	+	+	P&S	10
36782	4/22	Parakeet	2	1—Lung congested, L&S normal, old bird;	2	Lung-1	—	+	P&S	10
						Liver-1	—	...	P&S	10
				2—L&S swollen young bird		Lung-2	+	...	P&S	10
						L&S-2	—	...	P&S	10
36812	4/24	Parakeet	1	Petechial hemorrhage on heart	1	L&S-1	—	—	P&S	10
						Brain-1	—	...	P&S	10
37763	7/11	Parakeet	1	Distended abdomen; L swollen, S normal	1	L&S-1	—	+	P&S	?
37922	7/29	Parakeet	1	L swollen, yellow; S swollen; hemorrhagic rectum	1	L&S-1	—	+	P&S	10
37937	7/30	Parakeet	2	1—L enlarged 10 X	2	L&S-1	—	+	P&S	10
				2—L&S enlarged		L&S-2	—	...	P&S	10
37946	7/31	Parakeet	1	L&S swollen	1	L&S-1	—	+	P&S	10
38157	8/28	Canary	2	L&S swollen	2	S-1&2	?	—	S	10
	1953									
39043	1/9	Parakeet	1	Kidneys mottled;	1	L&S-1	—	+	P&S	10
				L&S normal		L&S-1	+	...	S	10
39069	1/14	Parrot	1	Focal necrosis liver	1	S	?	+	...	6&10
39156	1/20	Parakeet	1	Normal	1	S	—	—	S	10
						L	—	...	S	10
39224	2/6	Parakeet	2	L&S enlarged and necrotic	2	L&S-1	—	+	S	10
						L&S-2	+	...	S	10
39493	3/11	Parakeet	1	Normal;	1	Lung & L	—	—	S	10
		Canary	1	Pox on eyelid and mouth	1	Lung & L	—	—	S	10
39616	3/25	Parakeet	1	Lungs congested	1	L&S, lung	—	—	P&S	10
39619	3/26	Turkey	1	Int. hemorrhage	1	S	—	—	S	10
39642	3/30	Pigeon	1	S necrotic and L swollen	1	L&S	—	—	S	10
40302	5/14	Parakeet	1	Scab at corner of mouth	1	Scab	—	—	?	10
40308	5/15	Parrot	1	No lesions	1	L	—	—	...	10
						S	—	...	...	10
40486	5/27	Parakeet	1	No lesions	1	L&S	—	—	S	10
40700	6/10	Pigeon	1	L abscess	1	Mucus, S	—	—	S	10
V48766[3]	6/26	Pigeon	3	?	3	Mucus, 1-3	—	—	S	7
						Air sac-1	—	—	S	7
41462	8/10	Parakeet	1	L swollen, clay colored; S swollen, necrotic	1	L&S	—	—	S	10
V49271[3]	8/16	Parakeet	1	?	1	L&S, trachea	—	—	S	10
41611	8/24	Parakeet	4	1—Fibrinous exudate, L&S; S swollen;	4	L&S-1	+	+	S	7
				2—normal;		L&S, 2&3	—	...	S	7
				3—spleen slightly swollen;						
				4—normal		L&S-4	+	...	S	7
41726	9/9	Parakeet	4	1—Normal; 2—L&S swollen	2	L&S, 1&2	—	—	P&S	10
41758	9/11	Zebra finch	2	S swollen	1	L&S-1	—	—	S	10
42287	10/24	Parakeet	1	Hemorrhage in air sac; S slightly swollen	1	L&S	—	—	S	8
						Lung	—	...	S	8
42289	10/24	Canary	1	Normal	1	L&S	—	—	S	8
42489	12/29	Parakeet	1	1—Old, normal;	2	—	—	—	—	—
	1954									
42505	1/4	Parakeet	2	Pericarditis 2—young, S swollen; diarrhea	1	L&S, 1-3	—	—	S	7

TABLE 1 (Continued)—Summary of Data on Cases Examined for Psittacosis

Case No.	Date	Species	No. birds in consignment	Postmortem	Virus examination					
					No. birds examined	Material examined	Virus recovered	Case diagnosed psittacosis	Initial inoculum treatment	First passage age of embryo
42633	1/25	Parakeet	1	Cerebral hemorrhage	1	Brain, L&S	—	—	S	6
43027	3/16	Parakeet	1	Normal	1	L&S	—	—	S	6
43095	3/19	Parakeet	2	1—Normal; 2—wet nostril	2	L&S, 1&2	—	—	S	6
43153	3/24	Parakeet	1	L&S swollen and necrotic	1	L&S	+	+	S	6
43168	3/25	Parakeet	1	L&S swollen	1	L&S-1	+	+	S	6
						Brain-1	—	—	S	6
43239	4/1	Parakeet	1	Normal	1	L&S	—	—	S	6
43359	4/9	Parakeet	8	2, 4—Decomposed; necrotic L;	6	L&S, 2-4	+	+	S	6
				6, 8—S of bird 6 slightly enlarged		L&S, 6-8	—	—	S	6
43420	4/15	Parakeet	2	L&S enlarged and necrotic foci	2	L&S-1	+	+	S	6
						L&S-2	+	—	S	6
43431	4/15	Parakeet	1	Normal	1	L&S	—	—	S	6
43465	4/20	Canary	3	Normal	3	Brain, 1-3	—	—	S	6
43473	4/21	Starling	1	S enlarged; nodule in pectoral muscle; necrotic lesion esophagus	1	L&S	—	—	S	6
						Brain	—	—	S	6
43519	4/23	Parakeet	1	S enlarged L congested	1	L&S	—	—	S	6
43669	5/3	Parakeet	1	Normal	1	L&S	—	—	S	7
43674	5/3	Parakeet	1	L&S enlarged, covered with fibrinous exudate	1	L&S	+	+	S	7
43710	5/5	Parakeet	2	Normal	2	L&S, 1&2	—	—	S	6
		Canary	1	L necrosis	1	L&S	—	—	S	6
43686	5/3	Dove-squab	1	L enlarged	1	L	—	—	S	6
43825	5/11	Canary	4	Normal	4	L&S, 1-4	—	—	S	7
43950	5/20	Parakeet	1	Normal	1	L&S	—	—	S	6
44701	7/15	Parakeet	1	?	1	L&S	—	—	S	6

[1]P = Penicillin, S = streptomycin; [2]L = liver, S = spleen. [3]We are indebted to Dr. J. J. Black, Vineland Branch Diagnostic Laboratory, for presenting these specimens.

amination. Direct smears from organs or exudates for LCL* body examination were not made.

The procedure for virus examination varied somewhat from time to time. In general, the tissue was macerated by crushing it with a pipette against the side of the tube in which it had been collected. It was then suspended in 1 to 3 ml. of broth contained in the pipette. After centrifugation to sediment coarse particles, 1 ml. of the supernatant was removed and 10 to 20 mg. of streptomycin in 0.1 to 0.2 ml. of saline was added. The variation in streptomycin resulted from the variation in the amount of contamination suspected or known to be present. If particular effort had been made to collect the specimen aseptically, no antibiotic was used. Also, in some of the examinations, both penicillin and streptomycin (100,000 U. and 10 mg., respectively) were used. After a short but variable period, 4 or 5 embryos, 6 or 7 days old (yolk sac), or 10 days (c.a.m. or allantoic sac) were inoculated. In a few cases, both 6- and 10-day embryos were inoculated. Embryos dying in the first twenty-four hours, and usually the first forty-eight, were discarded. Those dying after this were opened and cultured for bacteria. Generally, Macchiavello's stain was made of yolk sac smears. Giemsa and Rivers' and Berry's modification of Castenada's stain were also used. Tissues (yolk sac and liver or liver and c.a.m.) were harvested and frozen for further passage. All frozen materials were stored in mechanical refrigerators at 8 to 15 F. or at 0 to 5 F. In some of the early examinations, embryos surviving on the seventeenth or eighteenth day of incubation were opened and smears stained for LCL bodies. Some blind passages were made, but the results did not seem to warrant this as a routine measure. Hence, in later cases, such embryos were incinerated unopened unless candling revealed an obvious abnormality, such as dwarfing, or unless there was other good reason (death of other embryos in the same passage) for suspecting the virus to be present.

*Elementary bodies of Levinthal-Coles-Lillie.

RESULTS

Inasmuch as the specimens examined included many with no history or lesions suggestive of psittacosis, it is not surprising that there were many negative findings. The results of the autopsy and virus examinations, together with other data, are given in table 1. It may be seen that virus

TABLE 2—Numbers and Kinds of Birds and the Recovery of Virus from Them

Species	No. cases	No. birds examined postmortem	No. birds examined for virus	No. birds + virus	No. cases + psittacosis
Parakeet	38	61	55	16(1)	12 4?
Canary	6	12	12	—	—
Pigeon	3	5	5	—	—
Parrot	2	2	2	(1)	1
Finch	1	2	1	—	—
Turkey	1	1	1	—	—
Dove	1	1	1	—	—
Starling	1	1	1	—	—
Totals	55*	85	78	16(2)	13 4?

*Two cases consigned more than 1 species; ( ) = not complete but previously considered positive; 4? = no final diagnosis made — all were from one client, and several other birds from this farm did yield virus. Since the lesions were typical, a tentative diagnosis was made even though virus was not recovered.

TABLE 3—Relation of Case Diagnosis to Postmortem Lesions and Virus Isolation

Case diagnosis + 13 + 4 (?)				Case diagnosis — 34	
Postmortem + 17		Postmortem — 0*		Postmortem + 10	Postmortem — 24
Virus + 11	Virus — 4	Virus + 0	Virus — 0	Virus — 9	Virus — 24
Incomplete — 2				Incomplete — 1	

*If any bird in a case consignment had lesions of psittacosis, on postmortem, the case was tabulated as positive even though another bird in the same consignment appeared normal.

was recovered from 16 tissue specimens from 16 of 85 birds in 11 of 51 cases. In addition, stains of some passages in 2 cases (36693, 39069) appeared positive for LCL bodies, and a positive diagnosis was made, but subsequent passages did not give the usual death pattern. Case 38157 also gave irregular results in that some embryos died and some survived in every passage. In general, a case was considered positive if the virus was recovered or if virus had previously been recovered from the aviary and the bird examined had lesions typical of psittacosis.

Table 2 summarizes the number and kinds of birds and the recovery of virus from them. Virus was recovered from parakeets. However, the number of other birds was too small to permit conclusions as to the incidence in these species.

Table 3 shows the relation between case diagnosis, autopsy findings, and virus examinations. However, correlation between postmortem-positive and virus-positive cases was better than it appears because one owner brought in individual birds over a long period and, since virus was recovered from the first ones, the last 4, which had typical changes of psittacosis, were considered positive cases even though the virus was not recovered. Some of these last birds were given terramycin® and this, too, may have influenced the results.

Table 4 records the results of inoculating embryos in 12 isolations, but only those passages are shown which ultimately yielded virus. If a duplicate second passage was made from another embryo in the first passage, and proved to be inactive, it does not appear in the table.

DISCUSSION

Our data indicate that virus may be recovered readily from acutely ill birds and, in some instances, from those with no gross pathological changes. It seems possible that the yolk sac inoculation of 6- or 7-day embryos, along with streptomycin treatment

TABLE 4—Inoculation Results in Virus-Positive Cases

Case	Age[1]	1st passage	Age	2nd passage	Age	3rd passage	Age	4th passage	Age	5th passage
36561 Bone M.	6	10[2],7,10	10	3,3,3,1,4	10	1,0-7[3],1,0-7,4	6	1,4,5,1,5	7	5,4,4,4
None	10	A17[4],1,6,6	10	7,A17,A17,A17,A17	6	4,5,5,4,5	—	—	—	—
36782 Lung 2	10	A17,A17,1,A17,6	10	A18,5,2,1,A18,7	10	5,A17,0-7,0-4,0-7	6	5,5,2,1,5	—	—
39045	10	A17,0-7,0-7,5	10	A17,A17,6,A17,A17	10	6,5,4,5	—	—	—	—
39224 No. 2	10	1,6,3,1	10	0-7,7,5,7,4	6	1,4,5,6,5	6	4,1,3,4,4	—	—
41611 No. 1	7	10,1,10,1,10	6	4,4,4,4	6	6,3,5,6,4	—	—	—	—
41611 No. 4	7	A17,8,A17,A17,6	10	3,0-7,0-7,2,0-7	10	0-7,0-7,2,0-7,0-7	6	3,3,3,5,4	6	4,5,4,4,4
45153	6	7,7,6,6,6	6	2,2,2,3,3	—	—	—	—	—	—
45168	6	6,8,8,7,6	6	6,1,6,7,7	—	—	—	—	—	—
45359 No. 2-4	6	6,4,A17,A17,10	6	4,5,7,9,A17	6	5,A17,2,2,5	7	3,4,3,1,3	—	—
45420 No. 1	6	6,7,5,2,5	6	6,6,7,7,6	—	—	—	—	—	—
45420 No. 2	6	5,5,4,4,5	6	5,5,3,6,5	—	—	—	—	—	—
45674	7	8,8,7,1,1	7	5,5,6,3,5	—	—	—	—	—	—

[1]Age, in days, of embryos inoculated; [2]10 indicates this embryo died on the tenth day postinoculation and was used to initiate the next passage; [3]0-7 = alive but opened on the seventh day postinoculation; [4]A17 = alive seventeenth day of incubation and discarded without opening.

of original tissues, might have increased the number of recoveries, but it is of interest that some recoveries were made even when penicillin was used and 10-day embryos were inoculated. Probably because of inexperience, we did not find the use of stains for LCL bodies a considerable aid in diagnosis.

EPIDEMIOLOGICAL NOTES ON SOME OUTBREAKS OF PSITTACOSIS

The histories obtained in the positive cases may be of interest. Some failed to yield much of epidemiological value, and in others, the information provided at one visit did not entirely agree with that in subsequent contacts.

Case Reports.—In case 36561, Mr. H. had 16 pairs of parakeet breeders in 12 cages in the basement of his home. All had access to a common flight cage. Eight other pairs were kept in an outside pen. He purchased 1 bird from a pet shop in the fall of 1951 and borrowed 7 males from a neighbor, Mr. R., in December, 1951. The 7 borrowed males were mated with the basement birds. The first hatch grew to maturity and was sold. Birds in the second hatch began to die at about 3 weeks of age, and in two weeks, on March 25, 50 of 70 had died. During this time, only parakeets under 4 weeks of age had been affected. Five canaries, 1 month of age, which were in the cage with the parakeets, did not sicken. All of a number of young parakeets given to friends died. Early in April, it was reported that all 120 of the second hatch had died and that the breeders were then destroyed. However, a visit on April 26 (C.B.H.) revealed that some of the breeders from the basement had actually been transferred to the outside pen when losses started in the basement because Mr. H. thought that the basement was responsible. Soon the young in the outside cage began to die. By this time, a diagnosis had been made, and all the parakeets were destroyed, but 2 canaries were left. The destruction of these was advised. There were 3 adult persons and 1 child in this household, but none had suffered an unusual illness during this period.

The 7 males were returned to Mr. R. on March 4, just a week before Mr. H.'s losses started. On April 11, Mr. R. reported the death of 4 parakeets in the pen in which the returned males had been placed. One of these was presented for examination (case 36693). The pathological findings were suggestive of psittacosis. Since no bacteria were obtained from routine culture of organs and because of the connection with Mr. H.'s aviary, a tentative diagnosis of psittacosis was made. Mr. R. had at least two pens of breeders, 11 pairs in each pen, separated from each other only by wire. After the tentative diagnosis was made, he started treating birds in the affected pen with terramycin and the others with aureomycin® (doses of each not reported). Subsequently, birds were presented from the original terramycin pen on April 15 and 22, and on July 11, 29, 30, and 31 (table 1). No birds died in the other pens during this period. In these cases, both old and young birds died.

Case 39043 is an example of those in which the only information obtained was that a bird recently purchased as a pet from a retail outlet died soon afterward.

Case 39224 involved the assembling of 4 pairs and 2 extra males from three sources, all local, and apparently all in good health. The last purchase had been made three months prior to the onset of losses. Only young parakeets between 1 and 4 weeks of age died (11 of 17). Three nest mates, of the 2 dead parakeets examined, lived. These birds were also kept in the basement of a private home. There had been no illness in the family.

In case 41611, a parakeet was purchased by Mr. K. from a chain store. It became ill, was taken to a veterinarian, and died before the examination was completed. Parrot fever was suspected. Shortly afterward, Mrs. K. developed what was diagnosed by a physician as acute tonsillitis. When told about the parakeet, the physician contacted the municipal health officer who requested that the parakeets be withheld from sales pending further developments and that the store notify him of any sick birds. The No. 1 bird in this case (table 1) came from this lot of birds. The same day, 3 other parakeets were presented from another chain store which purchased its stock from the same wholesale source. Birds 1 and 4, from which virus was recovered, were "blues," and birds 2 and 3, whose tissues were pooled and did not yield virus, were "greens."

Case 43153 was a pet parakeet, purchased about four months previously. The first indication of sickness was collapse or

fainting while in flight. Later, the bird became listless, refused to fly, and developed respiratory symptoms. A child in the family had a respiratory disease at the same time.

Case 43168, a parakeet purchased from a department store on March 4, 1954, was noticed to be ill on March 8 and died three days later. It was then wrapped in tinfoil and buried. (Two days later, another parakeet was purchased from another source.) Mrs. W., the housewife, became ill on March 19. A physician, on March 23, observing general weakness, diaphoresis, patches of dullness and râles in the right lung, and a temperature of 103 F., made a diagnosis of psittacosis and reported it to the municipal health officer. The dead bird was exhumed and virus was recovered. No further report was received concerning Mrs. W.

In case 43359, health officers procured dead birds from shipping crates sent to New Jersey from a state bordering Mexico. Virus was recovered from a pool of tissues of 3 blue, but not from 3 green, parakeets. The 2 birds of case 43420 were later submitted from the receiver's stock.

Case 43674 involved 2 adult birds purchased from the same source as 39043. One bird died in about three months, and the other failed steadily and was submitted about three weeks after the first bird's death. Virus was recovered.

From such limited information, most of it voluntarily given by the owners, it is difficult to draw conclusions. In many cases, the very young birds were the ones principally affected, and this agrees with what is known of the natural history of the disease. Basement housing in 2 cases, and shipping in 2 others, emphasize the possible importance of debilitating influences.

SUMMARY

Eighty-five birds of eight species in 51 consignments were examined for psittacosis by autopsy and virus isolation in chicken embryos. Judged by embryo deaths, virus was recovered from 16 birds in 11 consignments, all parakeets. Three other cases (1 parrot, 1 canary, 1 parakeet) gave irregular results. In most instances, the mortality in nestlings was higher than in adults. Two cases involved basement-raised birds and, in 5 cases, the birds had recently been purchased from a retailer or had been shipped.

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Zoonoses in Australia

Ever since the rat was found to be the bearer of the Black Death (1000 A.D.) many diseases transmissible between vertebrate animals and man have been discovered. The World Health Organization lists 98. In the *American Journal of Public Health* (Nov., 1954) several, which are common in Australia where zoonoses are relatively few, are discussed. Rabies, tularemia, trypanosomiasis, and several others fairly common elsewhere do not exist in Australia.

Hydatid disease, which is most common where large populations of sheep and dogs coexist, forty years ago was believed to be most common in Australia and Iceland. Now its greatest incidence is in South America, central Europe, and the Mediterranean region. The tapeworm stage rarely causes serious illness in dogs. Sheep or other animals which bear the cysts also may appear healthy, their carcasses, except for the offal, often being suitable for food. Incidence in man has been greatly reduced in Iceland by education, control of slaughtering, veterinary inspection of meats, and the restriction and annual anthelmintic treatment of all dogs.

Hydatid disease causes about 50 deaths in man per year in Australia. It probably could be eradicated.

Q fever, an influenza-like disease first diagnosed in 1935 among abattoir workers in Queensland, is caused by a Rickettsia now referred to as *Coxiella burnetii*. At least 17 species of ticks have been found to be naturally infected. Ticks could be a perpetual source of infection since the organism can be transmitted through the egg stage to the next generation. Cows, sheep, and goats provide the main source of human infection. The organisms are found in the placenta, postpartum discharges, and less often in the milk, urine, feces, and sputum of infected animals. Patients may infect other persons, probably through their sputum. The infection responds rapidly to chloramphenicol or aureomycin® therapy.

Brucellosis is very common in Australian animals, the incidence being estimated as 18 per cent in the cattle of South Australia. Although the raw milk from the area is heavily infected, pasteurization effectively clears it; few *Brucella abortus* infections from milk are reported. Veterinarians, farmers, and meat workers are most frequently infected, probably through skin abrasions. Infection in man through accidental inoculation with strain 19 is reported.

Leptospirosis in Australia was formerly considered an occupational disease, associated with work in the cane fields and occasionally on a dairy farm. Now the majority of cases have little or nothing to do with cane fields. Weil's disease, caused by *Leptospira icterohaemorrhagiae*, is found in urban and coastal areas. *Leptospira pomona* and *Leptospira mitis* infections, causing an influenza-like illness often accompanied by meningism and iridocyclitis, occur in the dairy and meat industry workers. Eleven types of leptospiras have been isolated in Queensland. The organism survives in mud and water and enters the skin through abrasions. Since it may penetrate mucous membranes, swimming in infected water should be avoided.

Psittacosis is seldom reported in man but the high mortality may indicate that many mild cases are unreported. The virus, first isolated in Australia in 1934, is now found in parrots in all parts of the Commonwealth. Penicillin therapy, while eliminating symptoms, may produce immune carriers so aureomycin® or terramycin® are preferred. They have reduced the mortality in man from 20 to 3 per cent. There is a vast reservoir of infected wild birds in Australia.

An *arthropod-borne encephalitis*, once called "Australian x disease" which, in New South Wales in 1918, caused 85 deaths in 128 cases, appeared again in 1951, 17 of 40 patients dying. It is related to Japanese B encephalitis and is almost certainly transmitted by mosquitoes. Wild and domestic fowl are transient natural hosts of the virus, and horses as well as man may be infected.

These zoonoses may be considered as quiet or even silent types of infections which are recognized and studied only when they create an "occasional hot battle."

Isolation of a Transmissible Agent from Pericarditis of Swine

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IN 1945, McNutt, Leith, and Underbjerg[1] reported the isolation of an unidentified active agent from hogs affected with arthritis. Experimental transmission of the agent into swine was successful and lesions of arthritis, peritonitis, pleuritis, and pericarditis were produced. Switzer,[2] in 1953, recorded the isolation of a filterable agent from the nasal passages of swine affected with atrophic rhinitis. He believed the microorganism to be pleuropneumonia-like in nature. Subsequent inoculation experiments with swine produced lesions of peritonitis, pleuritis, pericarditis and, occasionally, arthritis.

The following report is based on a preliminary study of a pathogenic agent recovered from young pigs affected with pericarditis, peritonitis, and arthritis.

CLINICAL HISTORY

In April, 1954, 3 live 7-week-old pigs were received for necropsy by the College of Veterinary Medicine, University of Illinois. The pigs originated from a litter which had been unthrifty since birth. When 2 to 3 weeks of age, these pigs were noticeably uneven in size and weight. This appeared to be true for each of the 47 litters on the farm. In each litter, 1 to 3 pigs showed evidence of anemia and stunted growth. The malady appeared to spread slowly. A few sows suffered from agalactia.

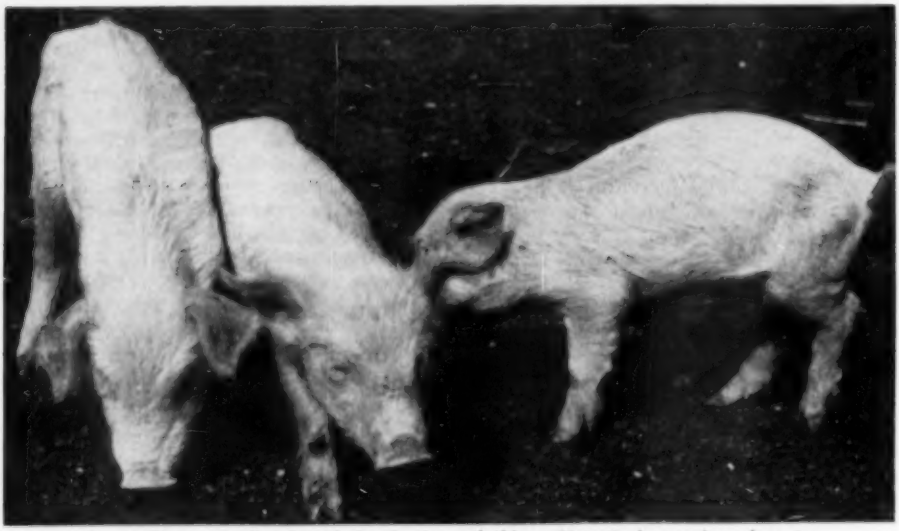

Fig. 1—Three naturally infected pigs showing unthriftiness. Note the long and rough coats.

Pregnant sows due to farrow, and sows with litters, were housed under excellent sanitary conditions in a newly constructed, well-ventilated physical plant. It was the practice to hold the litters in this building until close to weaning. Facilities for growing and breeding stock were provided in other well-managed outdoor lots.

The owner reported that affected pigs had body temperatures of 104 to 105 F. Personal observation also revealed evidence of anemia and slight icterus. A few recently weaned pigs were anemic but

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Fig. 2—The chicken embryo on left shows diffuse hemorrhage with edema; this embryo died on the seventh day postinoculation. The chicken embryo on right is an uninfected control.

showed no icterus. Their body temperatures were within the normal range. All affected pigs had good appetites but failed to gain weight.

LABORATORY EXAMINATION

The 3 pigs submitted for examination were alert and active in spite of their anemic state and loss of condition (fig. 1). Their temperatures were 101.0, 104.2, and 103.0 F., and their respective total white blood cell counts and hemoglobin values (in parentheses) were: 26,550 mm.^{3} (5.6 Gm./100 cc.), 23,200 mm.^{3} (4.4 Gm./100 cc.), and 14,450 mm.^{3} (2.25 Gm./100 cc.). Icterus was slight. Blood smears stained with Wright's stain failed to reveal evidence of Eperythrozoon species. Anisocytosis and poikilocytosis were marked. Serological tests for brucellosis and leptospirosis were negative.

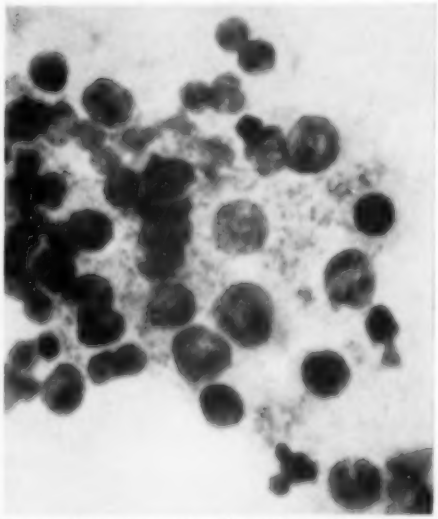


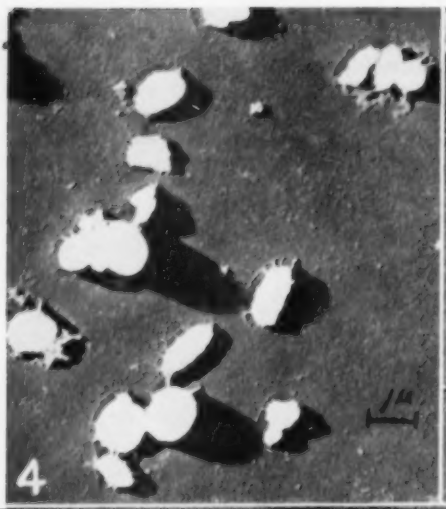
Fig. 3—Photomicrograph of a Giemsa-stained smear of pericardial exudate from a dead chicken embryo showing the microorganisms located intracellularly. Magnification approximately x 4,800.

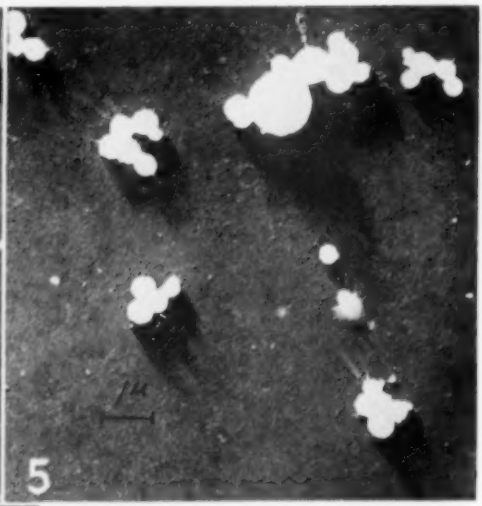
Postmortem examination revealed lesions

TABLE I—Results of Transmission Experiments

Experiment (No.)	No. inoculated	Inoculum	Amount of inoculum	Route of inoculation	Lesions
1 (4-day-old pigs)	1	*NYSC	2 ml.	Intravenous	None.
	2	NYSC	2 ml.	Intraperitoneal	None.
	2	**IYSC	2 ml.	Intravenous	Fibrinous percarditis, pleuritis, peritonitis.
	1	IYSC	4 ml.	2 ml. intravenously 2 ml. intraperitoneally	Fibrinous pericarditis, pleuritis, peritonitis.
	1	IYSC	2 ml.	Intraperitoneal	Fibrinous pericarditis, pleuritis, peritonitis.
2 (14-day-old pigs)	1	NYSC	2 ml.	Intravenous	None.
	1	NYSC	2 ml.	Intraperitoneal	None.
	1	None	—	—	None.
	5	IYSC	2 ml.	Intravenous	Fibrinous pericarditis, pleuritis, peritonitis, excess fluid in joints.
	2	IYSC	2 ml.	Intraperitoneal	Fibrinous pericarditis, pleuritis, peritonitis, arthritis.

*NYSC. = Yolk sac contents from uninoculated developing chicken embryos; **IYSC. = yolk sac contents from developing chicken embryos which died following inoculation with the infectious agent.





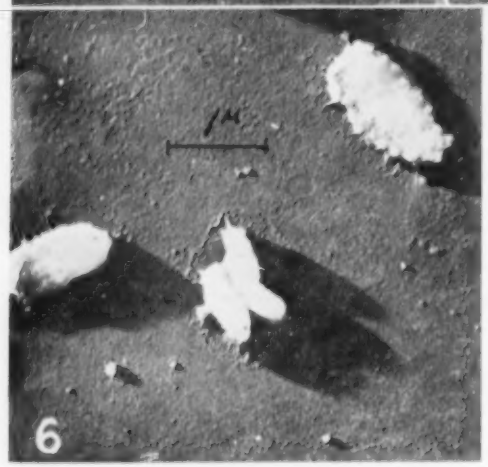


Fig. 4, 5, 6—Electron micrographs showing the short rod-to-coccoid morphology of the microorganisms.

Magnification: fig. 4 and 5, x 7,500; fig. 6, x 15,000.

of peritonitis and severe serofibrinous pericarditis. The pericardial fluid was turbid and grayish white. The cardiac musculature was pale and atonic. The hearts were enlarged and rounded in appearance. The spleens were normal in size, shape, and consistency. The livers were soft and a light tan with irregular focal areas of congestion. The hock and elbow joints of 1 pig contained an excessive amount of cloudy fluid with no visible erosions of the articulating surfaces. No other lesions were observed.

CHICKEN EMBRYO INOCULATIONS

A composite pool of pericardial fluid was collected aseptically for chicken embryo inoculation. This fluid was treated with a final concentration of 2,000 units of penicillin and 10 mg. of streptomycin per milliliter, and incubated at room temperature for thirty minutes. Nine 5-day-old chicken embryos were inoculated via the yolk sac route with 1 ml. of the treated fluid.

All embryos inoculated with this fluid died between the fourth and seventh days postinoculation. The dead embryos showed

lesions of diffuse hemorrhage with varying degrees of edema (fig. 2). Yolk sac contents were cultured on blood agar and in thioglycollate broth. No bacterial growth was visible following aerobic incubation of the inoculated mediums for forty-eight hours at 37 C.

In ten serial passages through developing chicken embryos, most of the embryos died between the fourth and sixth days postinoculation, but those dying on the sixth day or later occasionally exhibited a marked fibrinous pericarditis. The parietal surfaces of the liver in these cases were usually coated with a delicate fibrinous exudate. Anasarca was noted in a few embryos dying on the thirteenth to fifteenth days postinoculation.

Giemsa-stained smears of the fibrinous pericardial exudate of dead chicken embryos revealed deeply-staining microorganisms located predominantly within the cytoplasm of cells of the exudate (fig. 3). Morphologically, the microorganisms appeared coccoid to coccobacillary in shape and measured less than 1.0 μ in diameter, usually about 0.5 μ and occasionally less. Whenever observed, the feature of bipolarity was distinct. The microorganisms were also gram-negative. The counterstaining, however, was light.

Current findings indicate that the growth of the microorganism is not supported by common bacteriological mediums or PPLO agar (Difco). Observations of the infectious agent with the electron microscope suggest a resemblance to members of the Rickettsia or the psittacosis-lymphogranuloma group of viruses (fig. 4,5,6). Identification of the agent is still in progress.

EXPERIMENTAL TRANSMISSION

Two litters of pigs (4 and 14 days old) were used for transmission experiments. Each litter was divided into a control and inoculated group (table 1). The inoculum for the first experiment was concentrated by ultracentrifugation.[4,5] Each group of animals of like age and treatment were housed in separate isolation quarters and were attended by separate caretakers.

Both litters were held for approximately four weeks. During that period, daily observations revealed that after one to two weeks at least 2 pigs of each litter exposed with infective yolk appeared stunted and showed clinical signs of stiffness and pain, especially in the rear quarters. Excessive arching of the back was noticeable (fig. 7).

Fig. 7—Experimentally infected pig (R10246) showed difficulty in locomotion especially with the hind quarters. Notice the arched back.

Individual body temperatures of the infected pigs ranged from 104.0 to 106.4 F. Examination of the blood revealed the total white blood cell counts and hemoglobin values of the infected pigs to be within the range recorded for the uninoculated control group. The anemia, as observed in the original field cases, was not reproduced.

Necropsy of the experimentally infected pigs consistently revealed lesions of fibrinous pericarditis, pleuritis, and peritonitis. Arthritis was reproduced in 1 of the pigs from the 2-week-old

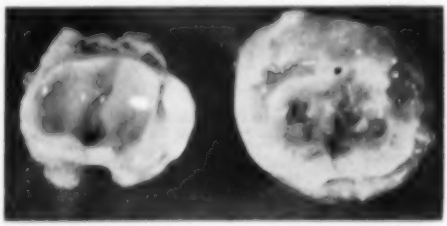


Fig. 8—Proximal articular surface of the right phalangeal bone (right) of an experimentally infected pig (R10246) showing irregular shallow ulcerations and chronic periarthritis. Proximal articular surface of the right phalangeal bone (left) from an uninfected control pig (R10244).

group. The left stifle, left hip, and right metatarso-phalangeal joints were moderately swollen and contained excessive amounts of turbid fluid. The cartilage of the proximal articular surfaces of the right phalangeal bone was eroded, showing sharply outlined shallow ulcerations of irregular shape. A chronic periarthritis was also evident (fig. 8).

Bacteriological examination of the affected tissues and joint fluids gave negative results. Re-isolation of the agent from the lesions of the infected groups of pigs was successful in every case by yolk sac in-

oculation of developing chicken embryos. The control pigs showed no lesions.

SUMMARY

1) An infectious agent has been isolated from a field case of serofibrinous pericarditis of swine.

2) The agent was propagated in 5- to 7-day-old developing chicken embryos inoculated via the yolk sac route.

3) Growth of the microorganism did not appear to be supported by common bacteriological mediums or PPLO agar (Difco).

4) Lesions of pericarditis, pleuritis, peritonitis, and arthritis were reproduced in pigs by the intravenous and intraperitoneal inoculation of infective yolk sac contents.

5) The infectious agent stains deeply with Giemsa's stain. Morphologically, it appears to be coccoid to coccobacillary in shape and measures about 0.5 μ or less in diameter. It is gram-negative.

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The Oxytocic Principle and Mastitis

Eight lactating, 5-year-old cows with normal udders were inoculated, each in one quarter, with an infective dose of *Streptococcus agalactiae*. The cows were paired and 1 of each pair was treated with the oxytocic principle alone or combined with penicillin; the oxytocin therapy produced no difference in the course of the experimental mastitis. When 20 units of oxytocic principle alone was given, after stripping, to each of the 4 cows at four, eight, nine, and fifteen days after infection it stimulated the secretion so that twenty minutes later, 340 to 620 ml. more milk was recovered from the infected quarter than from the similar quarter of the 4 control cows. However, this was followed neither by a reduction in the bacterial count, the neutrophil count, nor by any improvement in milk yield or milk quality over the controls. Seven days later the principals were given oxytocin intravenously, milked out in twenty minutes, then given penicillin in the infected quarter while controls received the penicillin only. Again, the effects were similar, the penicillin removing the infection from all of the treated quarters.

In a previous experiment with goats, a bacteriological recovery was obtained in 3 of 4 goats with penicillin alone and in only 1 of 4 with penicillin plus oxytocin.—*Vet. Rec., Nov. 20, 1954.*

Brucellosis in Sheep and Goats

Brucella melitensis infection in sheep and goats has been studied little since the investigations of the Malta Fever Commission of Great Britain early in this century. An intensive study of the problem is now in progress in Tunisia, Africa, under the auspices of the World Health Organization. Hundreds of unexposed sheep and goats have been imported from Sweden for experimental purposes. Vaccines which show promise in small laboratory animals will soon be tried on these animals. Studies will not be completed until the latter part of 1955.—*Chronicle, WHO, Oct., 1954.*

Fats Decrease Rumen Digestion

When certain quantities of corn oil or lard were added to the ration of sheep, they significantly reduced cellulose and protein digestion, and the rumen ingesta developed a putrid odor and a lowered votatile fatty acid content. The rumen bacteria total was not changed but the small rod types were decreased; the small cocci types increased. These effects were partly overcome by the addition to the diet of an alfalfa ash.—*J. Anim. Sci., Nov., 1954.*

Signs and Therapy of Epulis in Dogs.—Of 48 epuloid tumors in 2,307 dogs, 16 affected the lower jaw, 32 the upper; 15 were found in males and 33 in females. The lesions were inflammatory and usually were related to tartar formation. The fibrous type was most common.—*Vet. Bull., Nov., 1954.*

Spirochetosis in Pheasants

WILLIAM J. MATHEY, Jr., V.M.D., Ph.D., and PHYLLIS J. SIDDLE, B.S.

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A PRACTICING veterinarian in a foothill area of California consulted the authors regarding a disease outbreak on a Mongolian pheasant farm belonging to one of his clients. About 10 per cent of the 750 birds in one of five large pens (about 100 ft. by 400 ft.) had died. On autopsy, hemorrhages had been found in various parts of the carcasses, especially in the gizzards.

When a visit was made to the game farm two days after the birds had been treated with penicillin, they had improved greatly, only 3 or 4 birds still being visibly sick. In a search for tick or mite infestation, bark was pulled from dead trees in the pen and crevices in the pen structure were examined, but no ticks or mites were found.

The affected pen was the lowermost of five on a hillside, but drainage seemed adequate, the soil being sandy and sloping to one side of the pen. No evidence of the disease had been found in the upper pens.

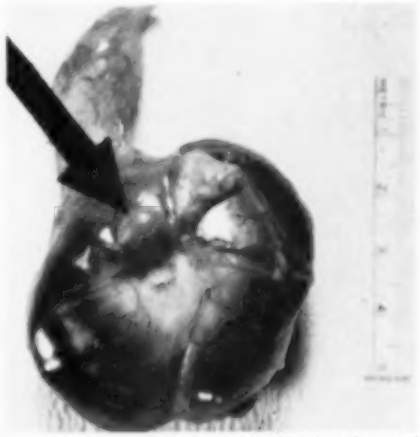
EXAMINATION OF AFFECTED BIRDS

Symptoms.—The birds were weak, sitting most of the time. Their wings were often held in a drooping position, but usually their heads were held erect and their eyes seemed bright.

Lesions.—Ecchymotic hemorrhages were found subcutaneously over the breast, legs, and back regions. Muscles of the legs and heart usually had pale areas (microscopically, Zenker's degeneration). Hemorrhages, petechial or ecchymotic, were found in the subserosa of the gizzard and heart. The gizzards, when opened, often had erosions of the mucosal surface accompanied by hemorrhage, and a necrosis of the musculature in large areas, often with hemorrhage. The heart occasionally had necrotic foci. The spleen was usually small and pale, sometimes with a few petechiae.

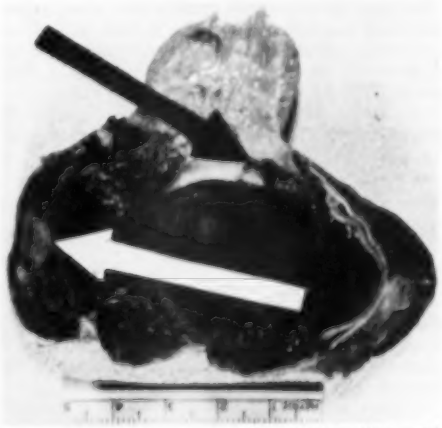
BACTERIOLOGICAL STUDIES

Blood, liver, heart, and spleen tissues were cultured on blood agar plates with negative results. Microscopic examination of Giemsa-stained blood smears revealed faintly stained blue filaments. Dark-field examination of wet blood smears showed actively motile spirochetes. Culture of these spirochetes was effected in embryonating eggs by yolk-sac inoculation, according to the method of McKercher.[1] The organism grew equal-



—Lorne Hardaker Photograph

Fig. 1—Proventriculus, gizzard, and spleen of pheasant with spirochetosis. Notice the small size of the spleen (arrow).



—Lorne Hardaker Photograph

Fig. 2—The same proventriculus and gizzard as in figure 1, showing erosions at juncture of the two organs (black arrow), and necrosis of gizzard musculature (white arrow).

From the School of Veterinary Medicine, University of California, Davis.

Fig. 3—Leg and heart of pheasant with spirochetosis, showing foci in heart muscle (pointer), and muscles of medial surface of leg degenerated (arrow).

—Lorne Hardaker Photograph

ly well when inoculated on the chorioallantoic membrane or into the allantoic cavity. Usually, the organism was numerous in the embryo and extra-embryonic membranes, the largest number seemingly being in the liver. None, or only a few, could be found in the extra-embryonic fluids.

An attempt was made to grow the organism in Schüffner's medium and in Tyrode's solution with 10 per cent rabbit serum. No multiplication of the organism was found with incubation temperatures of 37.5 C., 20.0 C., and 30.0 C.

BIRD PASSAGE STUDIES

Pheasants.—Inoculation of egg fluids containing the spirochetes into ring-necked pheasants (obtained from the Department of Poultry Husbandry) produced a hyperthermia (110 F.+) and a spirochetemia in about two days. One out of 8 pheasants died, with lesions similar to those in the natural outbreak.

Turkeys.—When fluids containing spirochetes were inoculated into 2 hen turkeys, a few spirochetes were found in the blood for a period of about two days, starting about two days after inoculation.

Chickens.—When blood, containing spirochetes (obtained from the pheasants), was inoculated into chickens 1 day of age, the response was variable, the reason for the variation not being known. Apparently, the source of the chicks was a factor, since severe symptoms and death followed inoculation of birds from one source, whereas only a transient spirochetemia was found following inoculation of birds from another source. Sometimes spirochetes could be found in the bone marrow of inoculated birds which did not have demonstrable spirochetes in the blood.

In chicks inoculated intramuscularly, spirochetes usually could be found in the blood in twenty-four to forty-eight hours. The number of organisms usually increased until there were so many visible in a dark-field preparation as to obscure individual detail. Many times the organisms started to form clumps at this time (about 5 to 7 days postinoculation) and disappeared in a day or two. An occasional bird maintained a spirochetemia for as long as two weeks.

Two chicks about 1 week old were inoculated intramuscularly with 0.5 cc. of blood from a chick with severe spirochetemia. An evident infection was obtained in about two days, the birds recovering from the spirochetemia in about a week. About three weeks after this, when they were found not to have spirochetemia, they were in-

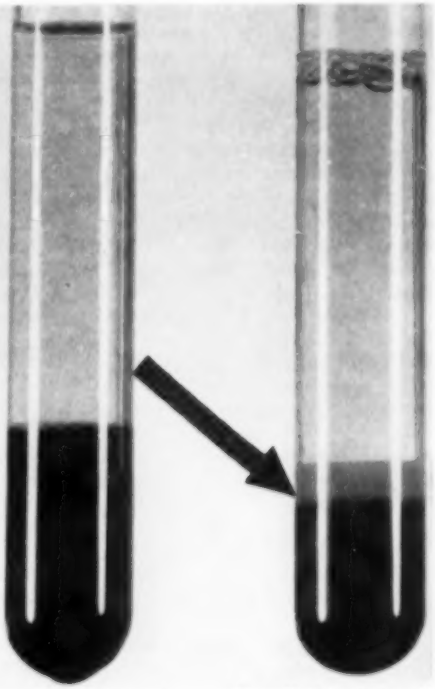
oculated intramuscularly with 0.5 cc. of blood from birds infected with a spirochete of turkey origin, obtained from Dr. D. McKercher. In approximately two days, the birds were again found to have a spirochetemia.

Ducks.—Two Muscovy ducklings about 10 days of age were inoculated intramuscularly with 0.5 cc. of chicken blood containing spirochetes. In about a week, these ducklings sickened and died with severe spirochetemia. Two uninoculated ducklings, kept in the same cage, developed the disease one and two weeks, respectively, after the death of the inoculated birds. Fluid which contained spirochetes, found in the vent of 1 of these birds, was inoculated intravenously in a chicken. The chicken showed symptoms of the disease in about a week and had numerous spirochetes in the blood for four days.

Bile from ducklings, as well as from chicks, was examined with the dark-field apparatus, since stress has been laid by some authors on bile droppings as a source of infection. At times a few immobile, apparently dead, spirochetes could be found in the bile.

DISCUSSION

The nature of the lesions found in the birds infected with this spirochete differs from that seen in birds infected with the turkey spirochete isolated by Hoffman, *et al.*[2] The small size of the spleen as compared with the enlargement seen with the turkey spirochete and the other avian spirochetes is a striking difference. The presence of necrotic lesions in the musculature is also a distinguishing feature of the disease produced by the pheasant organism. The mus-



—*Lorne Hardaker Photograph*

Fig. 4—Tubes of chicken blood centrifuged fifteen minutes at 1,500 r.p.m.: left tube, normal chicken, right tube, chicken with severe spirochetemia, showing reduced red cell volume and a thick band of concentrated spirochetes, (arrow).

Fig. 5—Giemsa-stained blood smear of Mongolian pheasant, showing spirochetes (arrow).

—*Lorne Hardaker Photograph*

cle lesions probably are due to the blocking of blood vessels by masses of spirochetes. There appears to be no good reason why the spleen should be greatly affected by one organism and not particularly affected by another similar organism.

Kligler *et al.*[3] found that several antigenically distinct strains of spirochetes existed in Palestine. The same situation probably exists in California. Further investigation may bring to light a number of strains of this organism in the United States.

The transmission of the disease from infected ducklings to contact birds and the finding of infective spirochetes in the vent fluid corroborate the findings of other workers in spirochetosis in California (Loomis,[4] Hoffman and Jackson,[5] McNeil *et al.*[6]), who think that digestive dejecta are most probably the chief means of spread of the disease.

SUMMARY AND CONCLUSIONS

An outbreak of spirochetosis in Mongolian pheasants on a California game farm is described.

Lesions found in the disease differed from those usually seen in spirochetosis.

Transmission of the disease was accomplished in Muscovy ducklings by contact from an infected duckling.

Transmission of the disease was effected with vent fluid injected intravenously into a chicken.

It is suggested that transmission of spirochetosis, at least in the United States, should be considered as brought about by contaminated droppings as well as by arthropod vectors.

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[3]Kligler, I. J., Hermoni, D., and Perck, M.: Studies on Fowl Spirochetosis. II. Presence of Serologically Differentiated Types of Spirochaetes. J. Comp. Path. and Therap., *51*, (1938): 206-212.

[4]Loomis, E. C.: Avian Spirochetosis in California Turkeys. Am. J. Vet. Res., *14*, (1953): 612-615.

[5]Hoffman, H. A., and Jackson, T. W.: Spirochetosis in Turkeys. J.A.V.M.A., *109*, (1946): 481-486.

[6]McNeil, E., Hinshaw, W. R., and Kissling, R. E.: A Study of *Borrelia Anserina* Infections (Spirochetosis) in Turkeys. J. Bact., 57, (1949): 191-206.

More on Parthenogenesis in Turkeys

That embryos can develop in unfertilized turkey eggs was further proved in 1954 at the Agricultural Research Center, Beltsville, Md. The 79 virgin Beltsville Small White females which had been isolated since 6 weeks old laid 2,537 eggs during the eight-week experiment. Of these, 22.4 per cent showed parthenogenic development when candled after nine days of incubation. In 27 eggs (1.06%) embryos and blood vessels developed and in eight (0.3%) the embryos developed beyond the equivalent of a normal 9-day embryo, three reaching the equivalent of a 26-day embryo. The higher incidence (22.4%) in 1954 is believed to be due to selection. With the same breed, the incidence was 16.7 per cent in 1952 and 14.1 per cent in 1953. It has occurred in 11.5 per cent of unfertilized eggs of other breeds. A few poults laid no parthenogenic eggs while others laid more than 20 per cent of that type. The hens laying the greatest number of such eggs were the progeny of 1 male. —*Agric. Res., Nov., 1954.*

A Hormone to Be Fed to Poultry.—The Food and Drug Administration has approved the production and sale of a synthetic female hormone known as "dienestrol diacetate," to be mixed with feed for broilers, old hens, and roosters. It is designed to accomplish much the same results as the stilbestrol pellets used in caponizing. —*Farm J., Dec., 1954.*

Experimental Salt Poisoning of Pigs

Although salt poisoning is common in pigs, it has been difficult to produce experimentally. When 12, 65-lb. pigs were fed a salt-deficient ration for two months and then fed a 6 to 8 per cent salt diet (on the dry feed basis) for two days with a limited water allowance, signs of poisoning appeared in 3 in less than forty-two hours from the first feeding; by the fourth day, all but 3 were affected and 1 of these eventually became blind. The most marked signs were staggering, weakness, paralysis, and convulsions. Upon necropsy, the only definite change was an extremely pale, yellowish, and friable liver with a few ecchymotic hemorrhages beneath the capsule.—*J. Anim. Sci., Nov., 1954.*

What Is Your Diagnosis?

Make your diagnosis from the pictures below — then turn the page ▸

History.—A middle-aged female hound developed a hard, fast-growing swelling on the right laryngothyroid area. Shortly thereafter the dog experienced difficulty ambulating and all four legs increased in size, giving the dog a "stalked up" appearance, except that the swelling in the legs was not edematous. Radiographs were taken.

(Diagnosis and findings are reported on next page)

Here Is The Diagnosis

(Continued from preceding page)

Because of the interest in veterinary radiology, the JOURNAL publishes this month and will continue to do so for the next several issues, a case history and accompanying radiographs depicting a diagnostic problem.

Our readers are invited to submit case histories, radiographs, and diagnoses of interesting cases which are suitable for publication.

The diagnosis was secondary hypertrophic osteoarthropathy as a result of pulmonary metastasis from an adenocarcinoma in the laryngothyroid area.

The case was presented by Drs. Irving S. Rossoff, Taylorville, Ill., and Edna C. Guibor, Skokie, Ill.

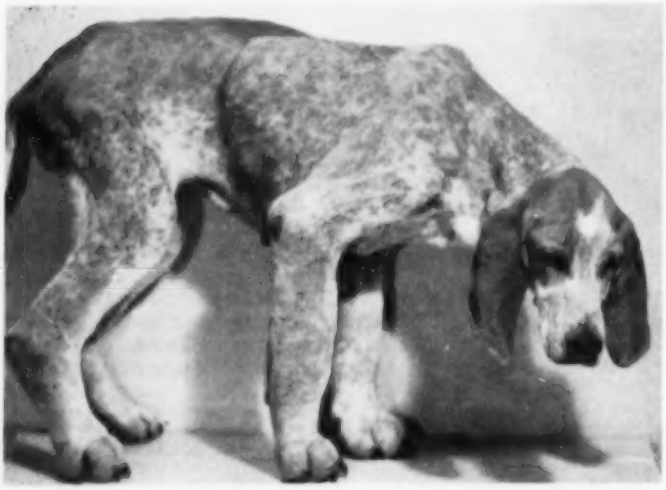

Fig. 1—Middle-aged female hound in an emaciated condition. Notice the hypertrophic appearance of the legs.

Fig. 2—A. Hypertrophic osteoarthropathy of bones of the foreleg. Notice that in osteoarthropathy, depicted both in the radiographs and in the photographs of the legs, the articular surfaces are not involved; B. hypertrophic osteoarthropathy of bones of the hind leg; C. primary adenocarcinoma of the laryngothyroid region; D. metastatic tumor nodules in the lungs which show as dense shadows in the lung area in the radiograph on the preceding page.

A Contribution to a Better Understanding of Ketosis in Dairy Cows

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MY APPROACH to a study of ketosis has been from the viewpoint of a practitioner, *i.e.*, recording the facts of each case with the hope that as they accumulated they would follow certain patterns.

From July 1, 1953, to July 1, 1954, 298 cows with ketosis were studied in 121 herds. They were members of five dairy breeds and were scattered through five counties.

A 5 cc.-oxalated blood sample was always taken (we prefer sodium oxalate) prior to any treatment. Other samples were obtained usually at 48-hour intervals prior to further treatments, if such were administered.

Since the color tests for diagnosing acetone in urine are misleading, being 100 per cent accurate only when they are negative for acetone, we have developed a color test on blood serum or plasma which is accurate for diagnosis of ketosis. The powder used is sold under the trade name of denco, and has long been used for testing acetone in human urine. As the ketone bodies concentrate in the blood of a ketotic cow, the color reaction of a drop of her serum becomes a darker purple on denco powder. The drop of clear serum may be secured by allowing the whole blood to clot naturally, or by centrifuging sodium oxalated blood for five to ten minutes in a portable centrifuge to obtain clear plasma.

When the drop of clear serum or plasma is placed on a mound of denco powder, the color is set in three minutes and holds for five minutes.

All of the 298 ketosis blood sugar determinations and color tests were performed on denco powder. It was soon observed that there was an inverse relationship between the color reaction and the blood sugar level of the cow's blood. Therefore, this test may be used for diagnosis and also for estimating the blood sugar at the time. A dark purple reaction accompanies a sugar of 20 to 30 mg./100 cc. of blood. Lighter purples to lavenders, in the one- to three-plus ranges, accompany higher sugar levels. A barely visable trace of color means that a case of ketosis is just starting or just terminating.

One of the greatest values of this test lies in its ability to differentiate between ketosis and other stresses of the dairy cow, in which acetone reactions are found in the urine. In many cases of mastitis, metritis, severe parturition, and even in foot rot, we have found sugar levels of 45 to 50 mg./100 cc. of blood, with three-plus urine reactions, yet they are negative for ketones in the blood serum when tested on denco.

When a yellow-golden color results from a drop of serum on denco powder, it means a negative test, and the cow may have a normal sugar range. It also may mean that she has a decreasing sugar level and the ketones have not yet started to concentrate. The test makes a perfect differentiation between parturient paresis and ketosis, especially of the nervous type. The serum from a case of parturient paresis has always given the yellow-golden color of the negative reaction, and we have found the blood sugars in parturient paresis to range from 50 to 200 mg., with nearly all above 65 mg./100 cc. of blood.

The test has further use as a guide for treatment. If a serum test is made prior to treatment and another is made forty-eight hours later, a lighter color reaction will indicate that recovery has begun.

I believe that ketosis should be considered as a disease of about thirty days', or more, duration, and not an attack of a few days' duration. Neither should we consider cows which require repeat treatment as having relapses. They are merely going through this long ketotic cycle.

We recorded the blood sugar and ketone reaction of serum and plasma of 50 preparturient and postparturient cows, some samples being taken at weekly intervals for

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The author acknowledges the assistance of James V. McCahon, D.V.M., who treated the animals; Armour and Company, who made the adrenomone available; the Denver Chemical Manufacturing Company, who furnished the denco powder; and the LaMotte Chemical Products Company, who donated the field kit for blood sugar determination.

five months. It would appear that normal cows maintain a steady blood sugar level between 40 and 50 mg./100 cc. of blood.

All cows on which records were available, about 400, dropped as much as 50 per cent in blood sugar at parturition, and we found that they fell into three patterns. Sampling cows at weekly intervals, starting two weeks before freshening, at freshening, and two weeks following freshening, did not reveal 1 cow capable of maintaining a normal sugar level as we accept the normal. Perhaps it is normal for all freshening cows to go through this metabolic disturbance and drop in blood sugar.

The 400 cows fall into three groups as follows: (1) Cows which drop to low sugar levels on freshening show symptoms but not a concentration of ketones in urine or serum. This is not ketosis but many of these cows require treatment. They could be called ketosis-susceptible. (2) Some cows will begin to drop gradually in sugar as parturition approaches, with an abrupt drop afterward, and maintain a low sugar for several weeks before gradually reaching normal. These cows will be positive for ketone concentration, but will show no clinical symptoms. This could be considered a mild ketosis. (3) This group will go through the same reaction procedures as group 2, but their urine and serum will give positive reactions for ketones. These are the cases which veterinarians are called to attend, since they show clinical symptoms. They can be considered as severe ketosis cases.

The ultimate desire in any investigation is to find methods of prevention.

I believe that ketosis can be kept at a low incidence if the cows are injected with 1 or 2 cc. of ACTH at weekly intervals, starting two weeks before freshening and continuing for two weeks afterward. Blood sugars may be low and ketone concentrations may appear on test but clinical symptoms seldom appear, and milk production proceeds uninterrupted. We have three herds under this study at the present time. We plan to evaluate cortisone and hydrocortisone therapy for such cases.

Some veterinarians say that ketosis is no problem in their practices. It has certainly been a problem in mine, and with 298 cases to treat in twelve months it can be considered a "headache problem."

SUMMARY

Use of the "denco test," and acceptance of the fact that ketosis is not a sudden breakdown of metabolism but a gradual development of several weeks, will assist the practitioner in a better understanding of the problem. The dairyman will benefit from the reduced loss in milk production, to say nothing of the prevention of loss through deaths and slaughter of cows because of a thirty- to sixty-day case of ketosis.

Chronic Tympanites Due to Fibromas

In Germany, 2 cases of chronic tympanites in cows were the result of occlusion of the esophagus by a fibroma growing from the wall of the rumen. One was diagnosed at slaughter; the other, when found on rumenotomy, was successfully removed by surgery.—*Vet. Bull., Sept., 1954.*

Fewer Colds in Open Sheds

In the initial phase of a long-time housing study at North Carolina State College, more cases of scouring developed in calves in a closed barn than when housed in an open shed. Also 4 cases of pneumonia developed in the closed barn, none in the open shed. The winter temperatures were higher and the humidity lower in the open shed.—*Progressive Farmer, Sept., 1954.*

Belated Diagnosis of Leptospirosis

In 1942, three separate groups of persons in Idaho and Wyoming developed an undiagnosed illness which was evidently connected with swimming pools. Typhoid fever was suspected but serological and bacteriological tests at that time were negative for typhoid, paratyphoid, brucellosis, tularemia, and Rocky Mountain spotted fever. In 1953, after *Letospira pomona* infection was found in cattle in the area, several persons were tested. Nine who had been ill in 1942 were found to have a significant titer of antibodies against *Leptospira canicola* and *Leptospira icterohaemorrhagiae*, while the serum from control persons was negative.—*J.Am.M.A., Nov. 13, 1954.*

The virus of the common cold after ten serial transfers on cultures of embryonic human lung was able to induce colds in human volunteers.—*Vet. Bull., March, 1954.*

The Diagnosis of Latent Bovine Brucellosis

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THE WIDESPREAD use of calfhood vaccination with strain 19 *Brucella abortus* vaccine has contributed much to the control of acute bovine brucellosis. Epizootics of abortions from Brucella are now a rarity in cattle. As may be expected, however, from live culture vaccination, which confers a relative immunity of undetermined duration, reservoirs of infection are likely to persist. The importance of such reservoirs depends on the virulence of the strain and the susceptibility of the cattle population. In a susceptible population, including man as well as cattle, these carriers become a hazard to public health as well as to a breeding program. The extent of these reservoirs is unknown.

Data collected by the Agricultural Research Service of the U.S.D.A. indicate that from July 1, 1952, to June 30, 1953, 3.4 per cent of cattle blood-tested under the state-federal brucellosis control program were reactors. These data represent, however, only 13 per cent of the dairy cattle in the United States. They also represent a cattle population where routine blood testing is being conducted and efforts are being made to eradicate infection as well as to keep it under control by vaccination. Thus, there would appear to exist a vast number of dairy cattle the status of which is not clear with respect to the incidence of reactors.

Since the objective in a brucellosis program must be eradication, the detection of latent infection becomes of great importance and is presently the subject of investigations at the California Experiment Station. This paper is a report of one phase of these investigations and deals only with the relationship of blood titers to the localization of Brucella in the udder. Although modifications have been recently adopted, the blood titer indicative of infection was established prior to the widespread use of vaccine. It would seem appropriate, therefore, at this time to reexamine this phase, particularly in an area such as California where at least 95 per cent of dairy calves are vaccinated with strain 19 and little blood testing is conducted.

TABLE 1—The Relationship of Maximum Herd Titers to the Localization of Brucella Organisms in the Udder

		Serum titers		Max. titers	Shedders 0-200		Shedders 200 +	
Herd	No.	0-200	200 +	in herd	V	NV	V	NV
3	15	15	0	100	0	0	0	0
7	20	20	0	200	0	0	0	0
8	44	44	0	100	0	0	0	0
9	49	49	0	50	0	0	0	0
15	40	40	0	100	0	0	0	0
17	22	20	2	12,800	0	0	0	2
19	22	17	5	5,200	0	0	4	0
21	21	21	0	100	0	0	0	0
23	28	28	0	200	0	0	0	0
24	79	79	0	100	0	0	0	0
25	23	22	1	800	0	1	0	1
26	26	26	0	100	0	0	0	0
27	134	127	7	12,800	0	2	0	5
28	50	49	1	400	0	0	0	0
29	75	67	6	6,400	0	1	4	2
30	48	48	0	50	0	0	0	0
31	14	14	0	200	0	0	0	0
32	20	20	0	50	0	0	0	0
33	31	28	3	3,200	6	0	0	2
34	25	16	9	6,400	0	0	8	0
35	18	17	1	6,400	0	0	1	0
37	11	7	4	1,600	0	1	1	1
38	9	9	0	0	0	0	0	0
39	5	5	0	200	0	0	0	0
40	252	252	0	100	0	0	0	0
41	553	552	1	6,400	2	0	0	0
42	280	279	1	800	0	0	1	0
43	549	540	9	800	0	0	0	0
44	55	55	0	0	0	0	0	0
45	61	60	1	800	0	0	0	1
46	45	45	0	200	0	0	0	0
47	55	55	0	200	1	0	0	0
48	38	38	0	100	0	0	0	0
49	44	44	0	200	0	0	0	0
50	54	52	2	800	1	1	2	0
51	15	15	0	200	0	0	0	0
52	22	21	1	400	0	0	0	1
53	23	23	0	200	0	0	0	0
54	54	54	0	100	0	0	0	0
55	45	45	0	50	0	0	0	0
56	54	53	1	6,400	5	0	0	1
57	28	27	1	5,200	0	0	0	1
58	53	52	1	5,200	0	0	0	1
59	47	44	3	6,400	0	0	1	2
60	29	29	0	200	0	1	0	0
61	51	51	0	200	0	0	0	0
62	55	55	0	100	1*	0	0	0
63	57	57	0	100	0	0	0	0
64	51	48	3	12,800	2	0	0	4
66	81	76	5	6,400	0	0	0	5
67	29	27	2	800	0	0	0	0
68	66	64	2	6,400	0	1	2	0
69	60	60	0	100	0	0	0	0
70	27	27	0	200	0	0	0	0
Totals	3,570	3,498	72		19	8	24	29

*Adult vaccinated; serum titers 0 to 200 inclusive; 200 + — 400 to 12,800; V — vaccinated; NV — not vaccinated.

From the School of Veterinary Medicine, University of California, Davis.

These investigations are cooperative with the Agricultural Research Service, United States Department of Agriculture.

METHODS

Blood samples were obtained from all milking cows in each herd and tested by the tube-agglutination technique, using antigen furnished by the Agricultural Research Service of the U.S.D.A. Except in a few herds at the onset of the investigations, blood samples reacting at 1:200 were retested to a dilution of 1:12,800. Histories, including age, vaccination record, purchased or raised, and any other pertinent data on each animal tested, were obtained. A composite milk sample from all four quarters was taken either concurrently with the blood or, if the herd was large, immediately after the serum titers were obtained. In the latter case, milk samples were obtained only from selected cows. Guinea pigs were inoculated, intraperitoneally, with 5 cc. of sediment and cream from centrifuged milk samples from the cows which reacted at titers greater than 1:50. Additional serological tests were conducted on milk but these will be the subject of a separate report. The guinea pigs were autopsied five weeks after inoculation, the spleen cultured, and the blood tested by the tube-agglutination method.

RESULTS

To date 70 herds, involving a total of 4,127 animals, have been examined, and the following incidence of blood reactions and Brucella shedders obtained:

Total reactions greater than 1:50—370 (9.0%)
Total reactions 1:100 and greater—300 (7.2%).
Total shedders —108; 29 per cent of the 370 reactors at greater than 1:50, or 2.6 per cent of the entire group.

The distribution of shedders, as related to blood titers in herds where maximum titers were obtained was:

Titer	50	100	200	400	800	1,600	3,200	6,400	12,800
Shedders	1	7	13	7	7	8	16	10	2

Not included in the above data are 37 shedders from 16 herds with a total of 557 animals from which maximum titers were not obtained.

Table 1 presents a detailed record of herds with respect to the maximum titer in the herd and the shedder condition. When shedders were found, the maximum herd titer was usually in excess of 1:200, often considerably higher.

A summary of these data shows that in 54 herds, comprising a total of 3,570 milking animals, there were 71 shedders as determined by guinea pig inoculation of milk from blood reactors (titers greater than 1:50). In 24 of these herds, comprising a total of 2,270 animals, blood titers in excess of 1:200 were found, and there were 68 cows shedding Brucella organisms in the milk. In the remaining 30 herds, where titers did not exceed 1:200, only 3 shedders were found. One of these was a 9-year-old unvaccinated cow; another was 5 years old and vaccinated; while the third was a 10-year-old, vaccinated as an adult, with a 1:100 titer. All reacted strongly to the whey and skimmilk plate-agglutination tests and also the ring test.

DISCUSSION

These data would suggest that the agglutination test be interpreted on a herd basis rather than on the individual, and that the status of the herd with respect to brucellosis shedders be determined on the basis of the maximum herd titer. The evidence also suggests that a titer of 1:200 in vaccinated herds is not indicative of virulent infection in the udder unless there are individuals in the herd carrying a higher titer. The evidence is conclusive that a maximum titer of 1:100 in vaccinated herds is not indicative of localization in the udder. During the course of the investigations, virulent Brucella organisms were recovered from the udder of 2 cows with titers as low as incomplete at 1:100, but in both cases titers greater than 1:200 were encountered in the herd. Herd 62 was the exception, the maximum titer being incomplete at 1:100. This animal was a shedder but had been vaccinated recently as an adult. The strain isolated was only slightly virulent for guinea pigs, was not CO_2-dependent, and could well have been strain 19. The milk reacted strongly to the whey plate test.

In vaccinated herds, brucellosis is not the explosive disease encountered in unvaccinated susceptible herds when infection is introduced. Therefore, in tolerating higher titers in vaccinated herds, the risk is slight that the infection may become widespread if the exceptional low titer shedder remains in the herd.

The data with respect to vaccination in the individual animals were not reliable. Many were known to have been vaccinated as calves, although the official tattoo was not visible. Others had been purchased with no record of vaccination. This, however, does not interefere with the interpretation of the results. In all herds, the majority had been calfhood vaccinated, an appreciable

number vaccinated as adults, and the remainder exposed to Brucella.

A detailed description of the organisms isolated with respect to virulence, species, and other biological data will be the subject of a subsequent article. It may be stated here, however, that the majority were virulent, as determined by guinea pig inoculation.

These investigations are continuing on an area basis, and greater numbers are being accumulated in the hope that the foregoing data can be substantiated. Milk tests are also being continued in conjunction with the blood and guinea pig tests, and there is evidence which suggests that a combination of the blood and milk titers could have a major role in the diagnosis of latent bovine brucellosis. The investigations are based on the belief that localization of the organism in the udder, rather than abortions from Brucella, is the major concern of the dairy producer.

SUMMARY

Data are presented from a survey of 54 herds comprising 3,570 cows indicating that titers up to 1:200, or at least complete at 1:100, are not indicative of localization in the udder provided there are no higher titers in the herd.

Cystic Bile Ducts and Renal Tubules in Baby Pigs

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This report concerns 3, 10-day-old pigs submitted to the Iowa Veterinary Diagnostic Laboratory at Iowa State College for diagnosis on Sept. 20, 1954.

History.—Of 13 sows owned by a farmer in northwestern Iowa, 12 were the first-generation progeny of 1 boar. The other sow was older and unrelated to the 12. After the sows farrowed in the spring, they were bred by a single boar, unrelated to the sows, and farrowed again during the first part of September, 1954.

Each sow had a litter of 9 to 14 pigs and all of the pigs appeared normal and healthy at the time of their birth. Some of the pigs from each of the litters of the 12 related sows began to develop distended abdomens and show symptoms of distress when they were 24 to 48 hours old. The pigs showing these symptoms lived for two to ten days after birth. The pigs from the older, unrelated sow remained normal and healthy. The loss from 10 of the 12 litters was 1 to 2 pigs per litter (average, about 14.0%). From the remaining two litters, 7 of 21 survived (a loss of 66.6%). The 3 pigs submitted to the laboratory were from the two litters with the greatest losses. Some similar loss may have occurred among the 1954 spring litters, but considerable loss from other causes makes this possibility somewhat obscure.

All the pigs were of the Spotted Poland China breed and, reportedly, males and females were equally affected. The sows were fed some commercial feed, but most of the feed was grown on the farm. The surviving pigs were not weaned until about 8 weeks of age, and they were not given prestarter or drugs of any kind. Only the herd boar had been vaccinated for hog cholera or swine erysipelas.

Gross Lesions.—Two of the 3 pigs were alive when first observed, 1 having died during the trip to the laboratory. The dead pig was necropsied immediately, the others the next day when 1 died and the other was destroyed.

All 3 pigs showed distended abdomens. In addition, the 2 live pigs showed depression and dyspnea. No other symptoms were evident.

When the abdominal cavity was opened, the liver was seen to be greatly enlarged, approximately four times as large as a normal liver from a 10-day-old pig of that size. The liver was filled with cysts varying from 1 mm. to approximately 1 cm. in diameter. The gall bladder was also enlarged to approximately 2.5 cm. by 5.0 cm. and was filled with a thin mucous fluid.

Multiple cysts were also evident on the surface of the kidney and the cut surface revealed cysts 1- to 2-mm. in diameter. The other organs were normal on gross examination. Bacteriological examination gave negative results. Tissue sections were taken from the kidneys and liver. Since the fresh liver had a tendency to collapse, most of the livers were fixed in formalin for forty-eight hours before sections were taken. The other organs were not sectioned.

Histopathological Lesions.—Microscopic examination of the tissue sections of the liver showed the cysts to be lined with cells resembling bile duct epithelium. As a result of the numerous cysts, there was relatively little of the parenchymatous tissue of the

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The authors express their appreciation to Dr. Paul C. Bennett, supervisor of the Iowa Veterinary Diagnostic Laboratory, and to Dr. W. S. Monlux, professor of pathology, Iowa State College, for their helpful suggestions.

liver present. The liver cells showed evidence of pressure atrophy. There was no infiltration of the interstitial tissue with inflammatory cells. There was an increase in the connective tissue stroma and a hypertrophy of the bile ducts. Some of the bile ducts were filled with leukocytes, with the polymorphonuclear cells predominating. Some of the cells which were seen lining the ducts resembled mucus-producing cells. Vacuoles, present in the cytoplasm of these cells, contained a substance that stained slightly acidophilic with eosin.

Microscopic examination of the tissue sections of the kidney showed a moderate number of cysts lined with the cuboidal cells. They evidently were dilated renal tubules, similar to those often found in pigs.

Conclusions.—From the history, it is believed that this condition was congenital; and since the dams were related, the condition probably was transmitted by them. The fact that the pigs from the unrelated sow were normal makes it unlikely that the boar alone transmitted the condition.

Heat Dissipation by a Cow and a Ewe

When a Jersey cow and a Corriedale ewe were exposed to high temperature levels during a controlled environmental study, they showed an increase in body temperature, in rate and volume of respiration, and in respiratory and transcutaneous water losses. In the cow, the transcutaneous water loss was of the same order as that through human skin and only one fifth of the total water loss was respiratory. In the ewe, one third of the water loss was respiratory and the transcutaneous water loss was only one third of that lost through human skin. Apparently, the cow maintained a heat balance by a good sweating mechanism while the ewe relied mainly on the respiratory mechanism.—*Vet. Bull., Nov., 1954.*

Swine Fever Outbreak in New Zealand.—Hog cholera appeared in a herd in New Zealand, which had been fed swill illegally obtained from a naval establishment. The need for strict control of animal products, including sandwiches and sausages, from overseas is emphasized.—*Vet. Bull., Oct., 1954.*

Chloramphenicol for Pneumonia in Pigs

Swine with virus pneumonia, a disease now reported from many countries, were given three daily treatments with an intramuscular injection of chloramphenicol suspension at the rate of 25 to 35 mg. per kilogram of body weight with encouraging results. Included were 9 pigs which had not benefitted from streptomycin and 2 which had relapsed following penicillin therapy. These responded quickly.—*Vet. Rec., Nov. 20, 1954.*

Artificial Hibernation for Tetanus

An 18-year-old stone worker, wounded ten days previously, was hospitalized with a severe case of tetanus. In addition to tetanus antitoxin and penicillin therapy, artificial hibernation was induced to prevent suffocation and reduce the fever. This included the use of barbiturates for prompt action, curare for prolonged action, and refrigeration with ice. Perspiration, usually marked, was greatly decreased and diuresis was increased. Upon awakening twelve days later, the patient remembered nothing since hospitalized. His psychic and sensory activities were not impaired.—*J.Am.M.A., Nov. 6, 1954.*

Data for Tetanus Prognosis

Data on 200 cases of tetanus in children under 15 years of age from a Brazil hospital indicate that the fatality decreases: (1) as the age increases; (2) as the incubation period increases (1 to 5 days = 57.9%, 6 to 10 days = 46.4%, and 11 days or more = 26.1%); and (3) as the length of time between the initial symptom and the first spasm increases (less than 2 days = 98.2%, 3 to 5 days = 10.7%, 6 or more days = 5.9%).—*J.Am.M.A., Dec. 11, 1954.*

New Cattle Grub Insecticide

A phosphate type of insecticidal spray known as "21/199" is the first among scores of new products tested which has proved to be as effective as rotenone. In a 0.5 per cent solution, sprayed or sponged on the backs of the infested animals, it was completely effective in less than a week; rotenone was 91 per cent effective in two weeks.—*U.S.D.A., Dec. 2, 1954.*

Erysipelas Infection in Poultry

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THREE PREVIOUS reports[1-3] have recorded 30 cases of Erysipelothrix infection in turkeys, ducks, or pheasants between 1934-1951. No case was diagnosed in chickens during this time. In the following two years, however, 2 cases on New Jersey poultry farms have been diagnosed. Breed[4] reported a case of mixed infection of Erysipelothrix and Pasteurella infection in a flock of 6-month-old fowl in Nebraska. Two-thirds of the flock of 300 died. Neither older nor younger fowl (separately housed) was reported to be affected.

In addition, two diagnoses of erysipelas in chickens have recently been reported by New York State workers.[5,6] One of these (Evans) reports losses of 5 or 6 a week in a flock of 900 New Hampshire yearlings, but the outbreak seemingly subsided without treatment. Ten additional hens which died during the following two months did not yield the organism. Narotsky's[6] case involved a pen of 400 Leghorn layers. Over 25 per cent mortality and 60 per cent decline in egg production occurred in three weeks. This outbreak began after pigs were placed in a pen to which the chickens had access. Each of the 5 birds examined on two occasions yielded the organism. The housewife who dressed chickens from this flock developed a finger infection which was clinically typical of Erysipelothrix infection. However, cultures of the pigs taken at slaughter were negative. The loss in this case, plus the knowledge that this organism is a real threat to the health of human contacts (caretakers, dressing plant personnel, housewives, etc.), emphasizes the need for continued vigilance and for information concerning the occurrence of erysipelas in chickens.

Our cases in chickens concerned White Leghorn yearlings and, in each case, only one pen of several in a building. In one case, 2 dead and 2 live birds were presented with only the meager history that the mortality in one pen was a little greater than on the rest of the farm. The dead birds had sour crop contents, the livers had some necrosis, and nephritis was present. Cultures from these livers yielded Erysipelothrix organisms. One live bird had a congested liver and the other had a cystic oviduct. Neither of the live birds was cultured. No information could be obtained about the further course of the disease in the affected pen.

The second case involved a pen of 800 birds in which 4 or 5 had been dying daily for the eight or ten days preceding the laboratory visit. Of 4 birds presented, 2 had red swollen livers, 1 had a swollen yellow liver, and swollen spleen, and 1 had only a congested liver. The gizzard contents (mostly oat hulls) of all were sour. The livers and spleens of the first 3 birds were cultured, and the owner was told that the appearance suggested an acute bacterial infection, possibly typhoid. The results were to be telephoned to him as soon as

TABLE 1—Erysipelas Diagnoses Made in the Poultry Pathology Laboratory, New Jersey Agricultural Experiment Station, 1952-1953

County	Date	Species[1]	Sex[2]	Loss[3]/total
Monmouth	1/9/52	T	M	10/112
Hunterdon	5/27/52	C	F	A few
Morris	9/10/52	T	M	6/2,000
Sussex	9/10/52	T	?	6/?
Hunterdon	9/29/52	T	M	11/80
Morris	10/7/52	T	?	?
Passaic	10/9/52	T	M	6/200
Monmouth	10/8/52	T	M	100/3,000
Somerset	11/20/52	T	M	1/7
Middlesex	12/1/52	T	M	5/25
Warren	12/9/52	T	?	6/1,500
Pennsylvania (Bristol)	12/30/52	T	M	100/?
Somerset	2/9/53	T	M	7/175
Middlesex	8/18/53	T	M	7/125
Morris	10/3/53	T	M	5-5 day/3,000
Morris	10/20/53	T	M	100/1,000
Ocean	11/20/53	C	F	55-40/800
Somerset	12/9/53	T	F	8/92
Middlesex	12/17/53	T	M&F	8/50
New York (Port Jervis)	12/28/53	T	M	15/?
Vineland Branch Laboratory				
Atlantic	Sept. 1952	T	—	—
Gloucester	Oct. 1952	T	—	—
Burlington	July 1953	T	—	—
Atlantic	Oct. 1953	T	—	—

[1]T = turkey, C = chicken; [2]Refers to principal mortality with regard to sex; [3]loss/total = loss at time of laboratory visit/total number of birds in flock.

Paper of the journal series, New Jersey Agricultural Experiment Station, Rutgers University, the State University of New Jersey, Department of Animal Pathology.

available. However, because a week-end would intervene, he purchased sulfamethazine at a feed store on the way home from the laboratory and immediately started using it. Whitish, coccus-like colonies grew on each culture and were identified by fermentation as Erysipelothrix organisms. The owner, when so advised, reported that the mortality "stopped cold" after the "treatment." Since only one pen was affected, there were no controls, and hence the value of the medication is not known. The owner was requested to present any other birds which might die in the pen but none was forthcoming.

The data for other cases of erysipelas occurring during this period are presented in table 1. It should be noted that 24 diagnoses (by bacterial culture) were made, whereas only 30 cases were diagnosed in the previous seventeen years. This probably reflects both the increased turkey population and interest in obtaining a laboratory diagnosis.

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Basophilic Leukemia in a Dog

What was believed to be the first description of a case of basophilic leukemia in a dog was reported in Italy. The spleen and all lymph nodes were markedly enlarged, and there were patches of swelling with necrosis of the small intestine, peritonitis, and edema of the lungs. Of the white blood cells, 58.5 per cent were basophile leukocytes.—*Vet. Bull., Nov., 1954.*

Erysipelas in a Chipmunk.—In Canada, *Erysipelothrix rhusiopathiae* was isolated from the brain of a chipmunk which was examined for rabies because it had bitten a boy.—*Vet. Bull., Oct., 1954.*

Acute Ergot Poisoning in Cattle

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Stockton, California

On Oct. 31, 1954, a call was made to a herd of 170 head of Hereford calves that were on 140 acres of irrigated pasture and, according to the owner, "were not acting just right."

Upon entering the pasture, it was noticed that several of the animals stood with their heads down and were trembling rather violently. When 1 of the affected animals was aroused, it started off at a rather stilted gait and then began leaping into the air. After going several yards, it fell on its side exhausted, and upon examination it was found that the mucous membranes appeared pale and the temperature was 101.2 F. The pulse and respiration were rapid, and the animal was trembling. After being allowed to rest, it got up and walked away with a staggering gait.

Examination of the pasture grasses, which were mostly clover and native grasses with some rye, disclosed that about 75 per cent of the rye was infested with ergot. Thus, a diagnosis of acute (convulsive) ergot poisoning was made and the cattle were moved to clean pasture.

Of the 170 calves, 18 showed varying degrees of nervous symptoms but no cases of the gangrenous form of ergot poisoning were observed. These animals, spring calves weighing around 350 to 400 lb., had been moved from mountain pasture and had been on the ergot-infested pasture twelve days prior to the occurrence of symptoms. Before this time, lambs had been on the pasture and had apparently refused to eat the rye grass as it was dry and had well-developed, infested heads.

In an adjacent pasture were 50 pregnant cows. The rye grass in this pasture was infested with ergot, but the cows had been on this pasture all summer and had kept the rye grass eaten so that few heads developed. These animals all appeared normal.

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Effects of Reserpine in the Dog

Preliminary Report

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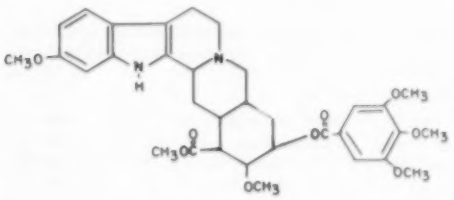
RESERPINE IS an alkaloid derived from roots of the Indo-Asian shrub *Rauwolfia serpentina*. Crude preparations of whole root have been used in India for centuries in certain psychoses and for epilepsy. It was also used in febrile conditions, snakebite intoxication, dysentery, and cholera, and as an anthelmintic, ecbolic, and children's sedative. The crystalline alkaloid, reserpine, was first isolated from the whole root in 1952. It has the empirical, formula $C_{33}H_{40}O_9N_2$, which is closely related to that of yohimbine, and is tentatively depicted[1] in figure 1.



RESERPINE

Fig. 1—The chemical formula of reserpine.

Reserpine is now being used extensively in treating mild cases of human hypertension and might be considered for treatment of certain diseases of domestic animals, although, to date, no work along these lines has been published, and indications for its use are uncertain.

Since reserpine is a potent alkaloid, it is the purpose of this article to point out that its indiscriminate use may lead to serious results. Studies on dogs have demonstrated that this species will not tolerate the total daily starting dose prescribed for a human patient, without ill effects. However, if doses are calculated on the basis of body weight, the maximum tolerated dose for dogs and human beings is approximately the same.

REVIEW OF PHARMACOLOGY AND TOXICOLOGY

Pharmacological effects of reserpine[2, 3] in the dog may be reviewed in the following sequence: (1) sedative, (2) ocular, (3) circulatory, (4) thermal, (5) respiratory, and (6) intestinal.

The sedative effect of reserpine is delayed, the latent period being at least one to two hours, and is of prolonged duration (a few days). Continued oral use in minimally effective sedative doses for several months in the normotensive, unanesthetized dog did not significantly lower the blood pressure.

The drug induces a state of quietude characterized by decreased spontaneous activity and reduced emotional reactivity. After large doses, the animal sleeps quietly but is not anesthetized. There is no analgesic effect. Unlike barbiturates, reserpine leaves the electro-encephalographic pattern unaltered, and it is not anticonvulsant.

Ocular manifestations present an interesting and typical picture (fig. 2). The pupils are severely miotic but react to light. The nictitating membrane is relaxed and may extend approximately to the central axis of the cornea. This perhaps indicates decreased sympathetic tonus. Ptosis of the lower eyelid makes the membrana appear even more prominent.

Circulatory effects are a gradual, moderate drop in blood pressure through an unknown mechanism, probably central nervous action on the blood vascular system. This fall in blood pressure is uninfluenced by atropine and is apparently due to vascular rather than cardiac action. There is lowering of pressure, even in normotensive dogs, following maximum effective doses. The antihypertensive effect is delayed in onset, develops gradually, and is sustained. With oral use, maximal response is attained in several days. The drug also decreases cardiac rate, an action not abolished by atropine.

Nephron water exchange is possibly decreased but without significant alteration in the filtration rate or plasma electrolyte concentrations.

Thermal effects are demonstrated by slight lowering of body temperature after administration of maximal doses of reserpine. There is no antipyretic effect, however.

Respiratory effects are an increase in depth but an insignificantly altered rate of respiration.

Intestinal effects consist of increasing the volume and acidity of the gastric secretion and the enhancement of intestinal motility.

INDICATIONS IN HUMAN MEDICINE

Clinical studies in human patients with essential hypertension have demonstrated that reserpine given orally is effective in producing favorable antihypertensive response by virtue of moderately lowering

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blood pressure, slowing the pulse rate, and calming the patient. Continued use over periods of several months gives no evidence of producing tolerance, addiction, or withdrawal symptoms.

The unique sedative effects of Rauwolfia, as long appreciated by Indo-Asians, are confirmed by clinical study. The tranquilizing, sedative action develops slowly, is evenly sustained, and produces somnolence only as an effect of overdosage. It adjusts only gradually to variation in dosage and disappears gradually when therapy is stopped.

In human patients[4-6] not receiving other hypotensive drugs, the usual starting daily dose of reserpine is 0.75 mg. to 1.0 mg. (13 to 17 μg./kg.) daily in divided or single doses. This level is maintained for two to three weeks unless distressing side-effects develop. The daily dose is then reduced, if response has been satisfactory, to a maintenance dose ranging from 0.1 mg. to 0.5 mg. (1.6 to 8.0 μg./kg.).

Reserpine is particularly useful for treatment of human patients with mild to moderate essential hypertension which is labile and associated with tachycardia and pronounced subjective symptoms. However, at present it has found no parallel use in veterinary medicine.

When administered at the recommended therapeutic dose, reserpine has a relatively low toxicity for man and has no known contraindications. Its side-effects are not serious and are readily controlled by reducing the dose or temporarily interrupting treatment. Nasal congestion, increased frequency of defecation, diarrhea, and weight gain have been reported. Other less common side actions, usually observed only with large doses, are dizziness, anorexia, nausea, headache, myalgia, and arthralgia.

TABLE 1—Sex, Weight, and Temperature of Dogs Administered Reserpoid Orally

Dog No.	Sex	Dose in μg./kg. t.i.d.	Initial Body wt. in kg.	Initial Temp. (F.)	Final Body wt. in kg.	Final Temp. (F.)
7.5 mg. in 7 doses in 3 days						
209	M		10.5	(Died 4 wk. after last dose)		
260	M		12.0			
0.25 mg. t.i.d. 21 days						
198	F	22.5	11.1	100.2	10.2	103.0
320	F	30.5	8.2	100.0	8.2	99.6
336	M	18.4	13.6	101.0	11.6	101.8
0.125 mg. t.i.d. 21 days						
314	F	9.5	13.2	101.0	12.3	100.0
318	F	13.4	9.3	100.2	9.4	103.0
337	M	11.3	11.1	101.0	10.4	101.0

EXPERIMENTAL

Evident beneficial effects of reserpine therapy in human patients might lead veterinarians to use the drug on what they believe to be similar conditions in animals. The following data, however, indicate the importance of avoiding overdosage.

Methods.—Two dogs selected for acute toxicological studies (209, 260) were each given 4.0, 1.5, and 2.0 mg. of reserpoid® on three successive days (a dose approximately 15 times that used for man, calculated on a weight basis). The animals became so ill that other experimental dogs were given smaller amounts.

®Trademark, Reg. U.S. Pat. Off., Upjohn brand of reserpine.

Fig. 2A—Relaxation of nictitating membrane of dog 260. Notice the miosis. The ptosis of the lower eyelid is not prominent, due to the angle of the camera.

Three animals (198, 320, 336) were given 0.25 mg. three times daily for twenty-one days; 3 others (314, 318, 337) were given 0.125 mg. three times daily for twenty-one days.

Each compressed tablet of reserpoid was crushed and mixed with approximately 50 ml. of water and administered by stomach tube. Table 1 lists the sex, weight, and temperature of the various animals treated.

Observations—Acute Symptoms.—Dogs 209 and and 260, after a dose of 2.0 mg. became depressed, weak, and demonstrated muscular tremors. This condition progressed until, after the second dose four hours later, the animals could stand only a few minutes at a time. Dog 260 vomited after the second dose.

On the second day, the dogs were given two 0.75-mg. doses. They vomited and retched the entire day. They were weak, sleepy, trembled continuously, their elbows were abducted and they showed incoordination. Their lower eyelids were relaxed and the palpebral conjunctiva, which was edematous and congested, appeared as if it would prolapse. The nictitating membranes extended across the cornea almost to the pupil, which was contracted to pinpoint size (fig. 2A, B). The dogs ate less and had frequent soft, scanty bowel evacuations.

The third day, the animals were given 2.0 mg. divided into three doses. The symptoms continued on the third and fourth days. Fourteen days after the last dose, both dogs appeared normal, but dog 209 died two weeks later.

Subacute Symptoms.—The 3 dogs given 0.25 mg. of the drug three times daily for twenty-one days appeared normal for two days, except that they remained quiet and slept if undisturbed, but on the third day, dog 320 was extremely depressed and had severe muscular tremors. This continued and on the seventh day there was complete relaxation of the lower eyelids with protrusion of the nictitating membranes. Stools were soft and evacuations numerous. Palsy-like tremors developed, the head being particularly affected. From the fourteenth through the seventeenth day, the dog vomited repeatedly. Thereafter, it seemed to improve slightly, but the weakness, tremors, and soft stools continued.

The other 2 dogs (198, 336) demonstrated decreased activity and a tendency to sleep lightly, as well as to have soft stools. On the fifteenth and nineteenth days of treatment, they developed slight to moderate tremors. At the end of twenty-one days, all dogs had slow, powerful heartbeats.

Of the 3 dogs given 0.125 mg. of the drug three times daily for twenty-one days, 2 (314, 337) remained quiet and inactive during the entire period of treatment. They did not tend to sleep, however. Dog 318, which received the highest microgram per kilogram dose (*see* table 1), of this group remained active the entire time. Dog 337 developed slight tremors after ten days, the other 2 after twenty days of treatment. Dogs 337 and 318 had slow, powerful heartbeats at the end of twenty-one days of treatment. Dog 314 trembled so much that it was not possible to auscultate the heart or find the pulse.

DISCUSSION

In experiments herein described, acute toxic symptoms following reserpine administration in dogs were confined mainly to anorexia, nausea, and vomiting; lethargy, depression, and sedation; muscular weakness, tremors, and incoordination; ptosis and congestion of the conjunctiva with a relaxation of the lower and third eyelids; and a tendency to soft stools with frequent evacuations.

Fig. 2B—The right eye of dog 260. Notice the elevation of the membrana nictitans, eversion of the lower eyelid, and congestion of conjunctiva.

A dose of 0.25 mg. (18 to 30 μg./kg.) three times daily for twenty-one days produced moderate to severe toxic manifestations in 1 of 3 dogs and slight to moderate in 2 of 3 dogs. A dose of 0.125 mg. (9 to 13 μg./kg.) three times daily for twenty-one days produced only slight muscular tremors in all of the 3 dogs. The latter dose roughly corresponds to one administered to dogs by Plummer *et al.*[2] for a longer period without eliciting significant toxic manifestations.

SUMMARY AND CONCLUSIONS

Basic laboratory studies in dogs indicate that overdosage with reserpine produces severe reactions. Dosages for dogs should

be carefully calculated on a weight basis to avoid serious toxic manifestations. Clinical trial of reserpine in this species, therefore, should be approached with due respect for untoward pharmacodynamic effects.

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Fly Spray Poisoning

L. M. Koger, D.V.M.

Ontario, Oregon

On July 29, 1954, about 7:00 p.m., an emergency call was received from a farmer for cattle reportedly poisoned as a result of being sprayed for flies. Seven of the 14 cattle sprayed had symptoms of colic and various degrees of muscular spasms. These animals were confined in four separate pens as follows: a long yearling Holstein-Friesian bull and yearling Hereford steer; 6 bucket-fed Holstein-Friesian calves; 3 Hereford weaner calves; and 3 Holstein-Friesian calves under 2 weeks of age. All had been sprayed with a mixture of 2 lb. of parathion wettable powder and 25 lb. of 5 per cent DDT wettable powder in 300 gallons of water about 4:00 p.m. when the barn and premises were thoroughly covered to control flies. This mixture was designed for orchard use and carried a warning of its toxicity, with atropine listed as an antidote. Fortunately, the milk cows were out in the pasture and were not sprayed.

The bull seemed affected to the greatest degree and was given 0.25 gr. of atropine sulfate intravenously and 0.25 gr. intramuscularly. All 6 of the "bucket" calves showed some toxicity and were given 0.25 gr. of atropine intramuscularly. Relief was evident in a matter of minutes. Although they had all been sprayed, none of the Herefords or the small calves exhibited any symptoms. However, all were washed with tap water spray except the 3 young calves.

Twenty-four hours later, a return call was requested. One of the 3 young calves was moribund, another was typically affected, but the third was normal. The affected 2 subsequently died despite atropine and symptomatic therapy. All 6 of the bucket-fed calves were showing a recurrence of symptoms, apparently greatly aggravated by drinking milk. Before more than a pint of milk had been consumed, the 2 smaller calves were seized with a spasm that threw the smallest to the ground and appeared momentarily to have killed it. The other 4 were visibly worsened by their milk ration but to a lesser degree. Treatment was repeated and all 6 survived, but it was necessary to wean them, as drinking milk repeatedly precipitated immediate exacerbation. The bull survived, but had a prolonged convalescence during which he appeared to suffer some distress during the heat of the day. None of the Herefords at any time showed any symptoms.

Also in the barnlots and presumably sprayed to some extent were 9 feeder lambs of mixed breeding. On August 9, 1 Suffolk lamb refused feed. Fearing its loss, the owner hastened it to a slaughterhouse. Its temperature was normal as was its general appearance, but the carcass was condemned postmortem because of a watery condition of the fat and because of petechiae on the heart, lymph nodes, and throughout the body.

The owner reported that early in May, on a cool morning, he had sprayed all of his livestock with a similar mixture and had observed no bad results.

This incident is but another in the many unusual situations that confront a practitioner.

Dr. Koger is a general practitioner in Ontario, Ore.

A Dispersal Sale of Quarter Horses.—In Sacramento, Calif., 34 Quarter horses and foals recently sold for an average of $390. Eight weanlings averaged $230; 6 geldings, $420; 10 mares, $305; and a stallion brought $2,600.—*West. Livestock J., Nov. 25, 1954.*

EDITORIAL

A New Departure in Examinations for Veterinary Licensure

An article which reviews developments with respect to the National Board of Veterinary Medical Examiners was published in the January JOURNAL (1955: 14-16). It tells of a method of testing which can be used by state examining boards to help determine the competence of candidates to practice veterinary medicine.

Stated in simple terms, the method employs an "objective" or "multiple-choice" type of examination instead of the usual essay type. Instead of writing paragraphs or pages in order to answer the necessarily limited number of questions in an essay examination, the candidate checks what he believes are the correct answers to a larger number of questions, or "items" as they are termed.

Instead of the examination papers being graded by the examiners whose grading, in spite of their conscientious efforts, may be affected by personal factors such as fatigue and reaction to good or poor penmanship and composition, the answer sheets in an objective examination are machine-scored.

The prime purpose of the objective examinations, developed by the National Board in collaboration with Professional Examination Service, is to furnish comprehensive and expertly prepared examinations that meet modern standards of medical education and knowledge. They should be welcomed by the many state boards which in recent years have requested the AVMA to furnish sets of up-to-date questions that could be used in revising their examinations. The objective examinations described in the article are believed to reflect a progressive trend in veterinary medical licensure.

There is nothing to which most applicants for licenses are more sensitive than the tests used to measure their competence to practice. The responsibility of state boards in giving examinations that are fair, yet comprehensive and capable of testing that competence, is great, not only to the candidates but to the public whose welfare is the basis for the various state practice laws under which the boards function.

Objective examinations are being used by several state boards and specialty groups in the medical field; in professional aptitude testing of medical school applicants, and by the U. S. Public Health Service in selecting professional personnel, including veterinarians, for commissions. Multiple-choice questions have also been used in recent years by some departments in our veterinary schools with good results and favorable reactions on the part of students. In combination with other tests, they are an effective method of determining a student's grasp of subject matter.

The article emphasizes that the use of objective examinations by state boards does not affect their prerogatives as to licensure of candidates but is only for the purpose of determining the latters' knowledge of veterinary medical subjects.

Veterinary students in several schools have expressed much interest in, and a desire to help advance, the acceptance of national board examinations. It is believed that such examinations and qualifications, also the idea of objective testing, will gain increasing acceptance as their advantages become better understood by state boards.

Reports on the use of objective examinations by other boards in 1955 will be awaited with much interest.—J.G.H.

Plain Talk About Bovine Mastitis

Since antibiotics became available, the merchandising of intramammary mastitis formulations has developed into a multimillion dollar "gravy train." This is an especially attractive market for corporations catering to an open-shelf goods market. Turnover emphasis has been stimulated by every gimmick known to modern sales promotion—a free flashlight with every purchase, page ads in farm magazines, radio sales "pitches", box-holder mailings, lush entertaining for college personnel and so on.

"Miracle drugs" to inject into cows' teats

are available in plastic tubes, tin tubes, liquids, jumbo-sized tubes, double jumbo plastic syringes, et cetera. The competitive race involves squeezing in a bigger variety of antibiotics, comparative unitage ratings, addition of cobalt, dispersing agents and, in some, a pewee dose of sulfonamides that wouldn't affect bacteriostasis in a mouse's udder.

Veterinarians cheerfully hopped on the mastitis ointment gravy train. The main incentives were (1) profits from dispensing turnover and (2) meeting a rapidly expanding type of lay sale competition.

AN EXAMPLE

A fine example of sales exploitation with long range damage to the dairy industry appears in the broadside advertising campaign of a large corporation. The dairy farmer is told:

> At the first sign of bloody, lumpy or stringy milk on your strip cup screen, infuse the infected quarter with . . . and avoid garget (acute septic mastitis.) Should the infection already have reached that stage, . . . administered by or under the direction of your veterinarian will produce effective results.

This enlightening message, plus the cheering news that "The tissue is saved, and the udder [not alone the treated quarter] speedily returned to normal" is displayed by page ads in 16 major farm magazines. Personnel of the urban advertising agency who have never been near a cow's udder can't be blamed for such travesties on common horse sense; but any veterinarian on the staff of the company producing the therapeutic agent must find it difficult indeed to correlate this with his education in veterinary medicine.

TIME TO RE-EVALUATE

Perhaps, even though the hour is late, it is time for every practicing veterinarian to reconsider his position and services as they relate to mastitis control on a community basis. In so doing they may, for an indeterminate period, be voices crying in the wilderness. Even so, the effort is worth the try.

Every veterinarian knows that infectious mastitis is, cardinally, an asymptomatic streptococcic, staphylococcic, or mixed flora udder infection. More often than not, the most active carriers in a herd exhibit no visible symptoms or palpable udder changes. The true state of affairs can be likened to the majority of human throats that normally harbor such "fellow travelers" as pneumococci or several diverse strains of streptococci. Under conditions of lowered resistance or stress—virus influenza, exposure, concurrent infections—these usually well-behaved microorganisms flare and produce lobar pneumonia, meningitis, or fatal septicemia.

So it is with mastitis of dairy cows. The sporadic case of acute mastitis, often with fatal issue, is only a single exhibit in a string of milking udders where asymptomatic or true infectious mastitis is present. Yet many veterinarians appear entirely willing to put mastitis control on a par with the nostrum and shelf-goods industry, namely, to inject something into the teat canal of individual cows guilty of giving abnormal milk. If, as a trained profession, we concur that "poking antibiotics up the teats" is the adequate and rightful answer, then we must also admit that the "animal health" section of drugstores and feedstores is a rational outlet for mastitis ointments. They have all that is needed.

ANOTHER EXAMPLE

A Kansas dairy farmer with a herd of 30 Jersey cows had been plagued with mastitis for a long time. Over the past five years he had spent almost a thousand dollars for antibiotic-infusion products.

At long last, he consulted a good veterinarian and the services of a competent laboratory. Individual quarter samples of the 30 cows showed streptococcic and/or staphylococcic infections in 27, and *Corynebacterium pyogenes* infection in 3 cows.

> The 3 cows with *C. pyogenes* infection were sent to slaughter.*
>
> A physical examination of all udders was made.
>
> The milking line was rearranged according to type and extent of infection.
>
> Stable hygiene, milking, and other practices were examined and corrective measures made.
>
> The infected quarters received four daily treatments with a multiple antibiotic, high-unitage infusion.
>
> A subsequent bacteriological quarter check was made and a few udders re-treated.
>
> Strip-cup readings were made prior to each milking and recorded on a chart. The entire cost of this program averaged a little over $5 per head.

The payoff was that, within sixty days

*All 3 cows carried internal abscesses.

after completion of the control program, the farmer got exactly twice the quantity of milk from 27 cows that he formerly got from 30. Needless to mention, he is no longer a frequent patron of the "animal health" corner of his local drugstore.

CONCLUSIONS

Profits from dairy herds are no longer as attractive as they were during the war years. The good dairyman strives for maximum milk yield at low overhead. Many veterinarians in dairy areas now have a lighter load of emergency calls.

Empirical lay usage of mastitis ointments is the world's poorest way to control mastitis.

A planned program of herd-wide mastitis control as a team project between practitioner and dairyman is both economical and rational.

From the practitioner's viewpoint, the time is over-ripe for re-evaluation of the whole mastitis problem.—A.H.Q.

Prospects for Food from Animals in 1955

The annual estimates made by the American Feed Manufacturers Association indicate a significant increase in swine, a small increase in milk cows, broilers, and laying hens and decreases in other classes of livestock and poultry for 1955. The 1954 fall pig crop, estimated at 35 million, is 11 per cent more than in the preceding fall and the 58 million pigs expected in the spring of 1955 is 4 per cent more than in the spring of 1954. The estimated 356 million laying hens is 2 per cent more than the previous year but the number of chickens, exclusive of commercial broilers, is expected to decrease by 3 per cent. The turkey crop of 56 million should be 7 per cent less than in 1954, with the proportion of light turkeys remaining at about 30 per cent. The estimated 22 million dairy cows is about 1 per cent greater than in 1954, but heifers raised for replacement may decrease by 5 per cent. The expected 126 billion lb. of milk would be an all-time high. The beef cattle total on Jan. 1, 1955, should be 3 per cent less than a year ago. A trend toward new and enlarged farm flocks of ewes in the past two years is believed to have been offset by reductions caused partly by drought conditions. The reduction in horse and mule numbers is expected to be 7 per cent, a slower decline than in previous years, with light horses making up the greater percentage of the total.—*The Feed Bag, Nov., 1954.*

Erysipeloid, an Occupational Disease

Erysipeloid, caused by *Erysiplothrix rhusiopathiae,* is a seasonal disease in Aberdeen, Scotland, mostly a local infection of the hands which causes a purple swelling, stiffness, inflammation, and pain. About 96 per cent of the infections were in persons associated with the fish trade, the others were chiefly handlers of animal carcasses. About 84 per cent appeared locally a few days after minor injuries such as small skin wounds from fins, knives, or fish boxes.

The organism is not present in fresh fish but is isolated with ease, except in the cold season, after the fish reach the market, the organism apparently thriving on the slime and scales of the fish during the warm season. Only 5 cases appeared among 2,200 trawlermen who handled the fish on the boats only, in contrast to 235 cases in the 2,500 workers at the fish houses or markets. The disease virtually disappears during the cold months. Immunity following such an infection is apparently of low order since 23 per cent of the patients admitted previous attacks.—*J.Am.M.A., Nov. 6, 1954.*

This Is Part I

The February issue of the JOURNAL is published in two parts. This is Part I, as is noted on the cover. Part II, containing the business proceedings of the Ninety-First Annual Meeting of the Association, held in Seattle last August, and the proceedings of the Preconvention Conference, is being mailed only to members of the Association.

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CURRENT LITERATURE

ABSTRACTS

Cinefluorographic Studies of Eructation in Sheep

An experimental cinefluorographic unit in the Department of Radiology, University of Rochester Medical School, was used to study the mechanism of eructation in sheep. The sheep had rumen cannula fistulas which made it possible to stimulate eructation by insufflating with a mixture of CO and CH. The apparatus consisted of a General Electric KX-1 generator and CRT 1-2 high energy output tube, making possible exposures at a maximum of 125 kilovolts, milliamperage values varying from 40 to 80 and a time limit of eighteen to twenty-five seconds when using a camera speed of 15 frames per second. A 14- by 14-in. DuPont-Paterson F_2 fluoroscopic screen was used at target screen distance of 28 inches. During intraruminal insufflation the reticulum contracted twice, clearing itself of ingesta. The ruminoreticular fold contracted almost to cardia level, holding the ingesta away from the cardia and preventing the ingesta from falling back into the reticulum. The gas was forced down into the relaxed reticulum. Synchronous relaxation of the cardia and the "diaphragmatic" sphincter permitted gas to rush into the relaxed esophagus. Closure of these two sphincters, followed by rapid contraction of the esophageal wall, eructed the gas from the esophagus. This mechanism seemed to be most active during the time the reticulum was filled with gas. An acetylcholine blocking agent which inhibited ruminoreticular motility did not inhibit active esophageal eructation activity. In one short trial, epinephrine completely inhibited esophageal activity and eructation.—[*R. W. Dougherty and C. D. Meredith: Cinefluorographic Studies of the Ruminant Stomach and of Eructation. Am. J. Vet. Res., 16, (Jan., 1955): 96-100.*]

FOREIGN ABSTRACTS

Listeriosis in Sheep

A report is submitted of an isolation of *Listeria monocytogenes* in a pure culture from the medulla oblongata of a sheep. Microscopically, a serious meningo-encephalitis appeared to be present. *Listeria monocytogenes* had previously been isolated from the spleen of a sheep from the same farm, but no examination was made of the brain. In the course of one year in this flock of 80 sheep, a mortality of nearly 10 per cent occurred with similar symptoms in all cases; *i.e.*, illness for one to three days, depression, and weakness. A bacteriological examination of the mucous membrane of the nose was performed on the remaining clinically healthy sheep. No carriers of *L. monocytogenes* could be found. The bacteriological and pathological examinations are discussed as well as the differential diagnosis. In several diseases, similar symptoms can occur. It is important that in all these cases an examination of the brain is performed, otherwise no reliable diagnosis can be made. It appears also that in the Netherlands listeriosis must be taken into account as a brain disease in sheep.—[*F. A. van Ulsen: Listerellosis in Sheep. Tijdschr. voor Diergeneesk., 79, (July 15, 1954): 535-539.*]—L. V. E.

Bovine Pulmonary Tuberculosis Caused by Avian Tubercle Bacilli

Cases of general open lung tuberculosis, caused by the avian type of tubercle bacilli, are reported in 2 cows from herds which had been free from tuberculosis for years. One had a distinct aspecific reaction while the other did not react, at least not to bovine tuberculin. On one of the farms, after two months, aspecific reactions were found in 2 calves. At the other farm, a number of animals showed a small reaction to bovine tuberculin. On re-examination six weeks later, only a few aspecific reactions were still present. No points of contact with the fowl of the farms were found, so probably wild birds were responsible (seagulls, pheasants, etc.). It is suggested that it is the duty of the health services to determine the type in all cases where tuberculosis is found in cows from farms supposedly free of the disease.—[*R. Post and E. W. van Ulsen: Two Cases of Open Pulmonary Tuberculosis in Cattle Caused by Avian Tubercle Bacilli. Tijdschr. voor Diergeneesk., 79, (Aug. 1, 1954): 579-586.*]—L. V. E.

Navicular Disease in the Horse

In navicular lameness, the pathological processes involve the navicular bone, the bursa, and the plantar aponeurosis. The degree of involvement may vary from small circumscribed areas of rarefaction of cartilage on the bursal side of the bone to complete destruction of the cartilage and fibers of the tendon and also adhesions to the altered bone. The differential diagnosis is difficult in early stages. A brief review is given of the literature on radiographic diagnosis of navicular disease. The author studied 81 cases of which 57 were examined by radiograph *in situ* and again after maceration of the navicular bone. The earliest stages consisted of vascularization which could not be detected *in situ* by radiograph but which was evident by radiographic examination of the macerated bone. It is emphasized that

negative roentgenological findings are not of much value in certain types of pedal lameness. The later stages, consisting of rarefaction and sclerosis, sometimes with exostosis, could be observed in radiographs of the bone *in situ*. The finding of enlarged nutrient foramina and an increase in their number, carious areas, and exostoses make the radiological diagnosis of navicular disease a certain one. The radiographs are made by placing the cleaned foot, with shoes removed, on a cassette on the floor. The tube is directed toward the midpoint of the coronary rim at the steepest angle possible, *i.e.*, more than 60 degrees. Because of the thickness of the tissues requiring the high voltage, the author has found that Ilford's lead screen for industrial radiography is satisfactory. In some horses with large feet, a grid and lead screen were used.—[*Sten-Erik Olsson: On Navicular Disease in the Horse. A Roentgenological and Patho-Anatomical Study. Nord. Vet.-med., 6, (July, 1954): 547-566.*]—A.G.K.

Nitrofurazone for Infectious Enteritis in Swine

Infection with *Salmonella choleraesius* causes serious losses in young swine. The disease is associated with poor hygiene and poor diet. There have been no satisfactory methods of treatment. Prophylactic immunization has also been of questionable value. It has been shown by others that nitrofurazone (5-nitro-2-furaldehyde-semicarbazone), or NFZ, was effective in controlling experimental Salmonellosis in mice and that it has prophylactic value in experimental infectious enteritis of swine. This report concerns field studies with NFZ on the prophylactic and the curative effects in feeder swine exposed to infectious enteritis. It was found that the disease could be prevented by giving NFZ in doses of 0.1 Gm. twice daily mixed with the feed. The treatment was started three to five weeks after the introduction of young pigs into an infected environment and continued for two to three weeks. In untreated controls, there was a morbidity of 16 per cent. In cases where treatment was delayed until onset of symptoms, there was good response to administration of 0.5 Gm. of NFZ twice daily for three or four days followed by half this dose for an additional three or four days. Swine appear to have no aversion to eating meal containing NFZ.—[*Nils Lauuck: Treatment of Infectious Enteritis in Swine with Nitrofurazone. Nord. Vet-med., 6, (Sept., 1954): 687-692.*]—A.G.K.

Succinylcholine Iodide in Veterinary Medicine

This drug, which has a curare-like effect, has been synthesized in pure form. It produces a neuromuscular block in voluntary muscles. The autonomic system is affected only by doses in excess of those that are useful for clinical purposes. In the dog, celocurin (succinylcholine iodide) may be given intravenously or intramuscularly when complete muscular relaxation is desired. A dose of 0.06 mg. per kilogram of weight is sufficient. Larger amounts may cause respiratory arrest. The drug is recommended for use only with an anesthetic. In horses, celocurin is especially useful for casting. An effective dose is 0.17 mg. per kilogram of weight, given with nembutal.® There is complete relaxation of the limbs lasting for about five minutes. For cattle, immobilization of the limbs is achieved by a dose of 0.03 mg. per kilogram of weight. The effect persists for ten to fifteen minutes. In cattle, it is necessary to block the esophagus to prevent aspiration of the stomach content. This is done by inflating a rubber bulb which has been passed down the esophagus attached to a hollow probe.—[*C. H. Hansson and H. Edlund: Experimental Investigations and Clinical Experiences with Succinylcholine Iodide (Celocurin) from the Standpoint of Veterinary Medicine. Nord. Vet.-med., 6, (Sept., 1954): 671-686.*]—A.G.K.

Botulism in Horses

In 1866, André described an afebrile disease of horses characterized by paralysis and paraplegia. This disease is now recognized to be botulism. In 1941, type D toxin was shown to be the most usual type in this disease.

Clostridium botulinum has been regularly isolated from the tissues of affected horses immediately after death. The organisms are prevalent in the liver less frequently than in the spleen.

The disease in horses is, therefore, not simply an intoxication but a septicemic intoxication in which the toxins are elaborated in the host tissues after invasion through the intestinal tract.—[*R. Williams: Botulism in Horses. Bull. Office Internat. des Epizoot., 42, (1954): 482-513.*]—J.P.S.

Immunization Against Bovine Pasteurellosis

Of the various methods proposed for the classification of strains of *Pasteurella septica*, the only one of practical value is that based on their immunological relationships. The results of examining 37 strains by Roberts' (1947) method are given and it is shown that all the 15 strains isolated from cases of "hemorrhagic septicemia" in Pakistan, India, Thailand, and Kenya belong to Roberts' group I. This group has not yet been encountered in England where a disease entity comparable to the pasteurellosis of Asia and Africa rarely, if ever, occurs.

It would appear that in the protection of buffaloes and cattle against true pasteurellosis a monovalent vaccine should suffice.

By growing a group I strain of *P. septica*, in series, in tubes of mediums, through which a stream of air bubbles is passed, very dense growths result and one can obtain, by plating, colonies of all grades of virulence for mice. The immunizing values of such sub-strains appear to be related to their virulence.

A strain of medium virulence was chosen and

an experimental lyophilized vaccine was prepared. The vaccine was sent to Thailand where it was shown to be harmless to buffaloes when inoculated by various routes. It protected 13 out of 16 buffaloes against a dose of virulent organism that killed both the controls. This work is obviously of a preliminary nature as no attempt has been made to study the possibility of using a slightly more virulent strain nor the effect of varying the dose of attenuated organisms injected as vaccine.—*[V. S. Bain and J. R. Hudson: Immunization Against Bovine Pasteurellosis. Bull. Off. Internat. Epizoot. V., 22, (1954): 256-276.]*—J.P.S.

Importance of Foxes in Dissemination of Rabies in Germany

Rabies has been reported to have spread from eastern European areas into the German Federal Republic.

The disease has shown a complete transformation of its epidemiological character on account of a strong participation of foxes and other wild animals.

Under such conditions, it is necessary to eradicate foxes in order to achieve a successful control of rabies. With this end in view, a bounty is granted for each killed or captured fox. Besides, it is recommended that fox holes be treated with hydrocyanic acid to destroy the young foxes.

In regions which up to now have been free of the disease, it is desirable to restrict the number of foxes. Measures of veterinary control which consider dogs in particular as main carriers of rabies do not suffice to stop the spread of the disease.—*[Martin Zunker: The Importance of Foxes in the Dissemination of Rabies in Germany. Bull. Off. Internat. Epizoot. V., 22, (1954): 83-93.]* —J.P.S.

Nitrofurazone and Experimental Lymphomatosis in Chicks

Nitrofurazone (5-nitro-2-furaldehyde semicarbazone), or NFZ, is widely used as a prophylactic and therapeutic agent in coccidiosis of poultry. It has also been reported to retard the development of certain transmissible tumors in mice. It was, therefore, decided to learn what effects, if any, NFZ might have on transmissible lymphoma in chickens. Week-old Leghorn chicks were inoculated subcutaneously with a transmissible lymphoma. The NFZ was given intraperitoneally in a single 2-mg. dose when the tumor cells were injected. The drug was also given in the ration to two groups in concentrations of 0.1 and 0.02 per cent, respectively, during the experiment. The criteria to determine effect was based on appearance of tumors and on survival time. In the control groups, the mean time for appearance of the tumor varied from 2.4 to 5.3 days, while in the treated, the figures varied from 2.2 to 5.2 days. The mean survival time for the control groups varied from 6.8 to 9.4 days, and for the treated, 6.8 to 8.8 days. It was concluded that in all the experiments the treated chicks developed tumors faster and died earlier than the untreated controls.—*[Nils Lunnek: The Effect of Nitrofurazone on Experimental Lymphomatosis in Chicks. Nord. Vet.-med., 6, (Sept., 1954): 693-700.]*—A.G.K.

Grass Tetany in Cows

The author advances the hypothesis that the cause of grass tetany is intestinal auto-intoxication. He compares the similarity of the disease to that produced by the administration of histamine, *i.e.*, intestinal disorder, acetonemia and hypoglycemia, dehydration, disturbances in the mineral and acid-base balances, hypomagnesia, hypocalcemia and, frequently, hyperphosphatemia.

It is stated that grass tetany affects 1 out of every 100 dairy cows in Holland and that 1 of every 7 affected cows succumbs. In most of the cows, the dietary intake of magnesium is sufficient. While most cases occur within one to two weeks after the animals are put out to pasture, experimentally it requires more than two weeks on magnesium-deficient rations to reduce the absolute values of blood magnesium in dairy cows.—*[L. Seekles: Problème de la tétanie des bovins. Analyse critique de. Rec. méd. vét. (Sept., 1954): 586.]*—R.F.V.

BOOKS AND REPORTS

Textbook of Special Surgery

This new edition of special surgery of large and small animals deals not only with special surgery in the real sense of the word but it also discusses diseases of the eyes, some pathological conditions of the skin and mucous membranes, and some disorders of nervous and genito-urinary systems.

The main part of the book is, however, devoted to the disorders of extremities, including the hoofs of horses and cattle and the claws of small animals. With regard to this enormous task and the size of the book, the descriptions of some disorders are, of course, limited. This book originally appeared as "Fröhner's Compendium." This may explain the limited description of many subjects contained in the present textbook.

The book is written clearly and has many good illustrations. It may serve as a help for veterinary practitioners.—*[E. Silbersiepe and E. Berge: Textbook of Special Surgery for Veterinarians and Students (Lehrbuch der Speziellen Chirurgie für Tierärzte und Studierende. 12th ed. 595 pages. 556 illustrations. Ferdinand Enke, Stuttgart, Germany. 1954. Price not given.]*—F. KRAL.

Care of the Aging Dog

This instructive book is intended as a guide for pet owners who desire information on how to better care for their dogs, particularly the older dogs. It gives good advice on what to do to make them live longer and happier. The content is informative

and answers, in a pleasing way, questions that are commonly asked by people who own dogs. Such things as grooming, nutrition, disabilities, skin care, allergies, tumors, surgical care, and hormone balance of the older dog are discussed in language the layman understands. The book has a reference list on some of the classical manuscripts that have been published on the aging processes of the dog, which is recommended for people who ask for information on how to give good care to their dogs. The text compliments the veterinarians and their hospitals and expresses an appreciation of the many things the profession is trying to do for the pet owners.—*[Care of the Aging Dog. By C. E. DeCamp. All Pets Books, Inc., Fond du Lac, Wis. 1954. Price $1.25.]*—WAYNE H. RISER.

How to Treat a Dog by Homeopathy

Homeopathy was first adopted by S. Hahnemann (*c.* 1800), a German physician, and has been defined as a system of medical treatment based on the theory that certain diseases can be cured by giving very small doses of drugs which in the healthy patient and in large doses would produce symptoms like those of the disease. This method still is popular in certain circles in France in treating human patients. The authors have applied this concept of disease to the canine field. There is very little original work in the text, being mostly an exposition on the theory of homeopathy. The reviewer gathered the impression that the authors were just as concerned to convince themselves of the value of the theory of microdoses as they were the reader.

Nearly 100 diseases are listed and the treatment recommended for each. The influence of the psychosomatic factor, which may play an important part in evaluating such therapy on man, is absent in canine practice. It would, therefore, appear that such therapy could be scientifically appraised in our field, something which the authors have not cared to do in this book.—*[Comment Soigner un Chien par L'Homéopathie. By J. Lamouroux and A. Lebeau. 128 pages. Vigot Frères, editors, Paris 6. 1954. Price not given.]*—FRANK VIGUE.

Dog Book Series Useful to Veterinarians

Veterinarians, especially the small animal practitioners, are continually consulted by clients for names of books that provide suitable information for the pet owner. They are often hesitant to make such a recommendation because much of the information is not well founded and authoritative.

Mr. Frank E. Dittrich, the publisher of this series, has taken this fact into consideration when producing these books. The health recommendation in each instance is written by a veterinarian and in one book, "Care of the Aging Dog," the entire text was written by Dr. C. E. DeCamp.

This is the first time an attempt has been made by a publisher of dog books for laymen to give the veterinarian an opportunity to tell his story. These books, produced as they are, should be helpful to the pet owner in supplying him with useful information backed up by experience from practicing veterinarians and, in turn, they should stimulate good public relations for the practice of veterinary medicine.—*[Dog Book Series. 23 individual books, 64 pages each. All Pets Magazine, Inc., Fond du Lac, Wis. 1954. Price $1.25 each.]*—W. H. RISER.

The Breeding and Treating of Dogs

This is the second edition of a handy book for dog breeders and fanciers. A large part of it is devoted to confirmation of the various breeds, some of which are not as yet very popular in America. The section on the breeding and raising of dogs is excellently written, the author having a wide knowledge of nutrition. However, the chapters on the treatment of the common diseases do not appear to be up to date. The book is profusely illustrated and is a valuable reference for dog breeders, the main objection by this reviewer being the section on therapy. The author is also co-author of a book on homeopathy of the dog.—*[Elevage et Médecine du Chien. By A. Lebeau. 2nd ed. 231 pages. Illustrated. Vigot Frères, editors, Paris, 6. 1954. Price not given.]*—FRANK VIGUE.

Restraint of Animals

This loose-leaf handbook for veterinary students and practitioners has much information of value, especially for the student, but because of its rather juvenile approach, may not appeal to many practitioners.

Most of the sections are basically good although they often reflect inexperience. This is particularly true of the chapter on swine. Parts are amusing; however, a few suggestions, if followed, would be dangerous.

It is suggested that when catching a baby pig it not be chased lest it develop "a bad temper or nervous disposition"; also, "never to lift or to hold a pigling by his ears or tail" but by "gripping his body" firmly. Unless prepared for an attack by sows enraged by the pigs squealing, as well as the trampling of pigs by these sows, this advice had best not be followed. It should be exactly reversed for handling baby pigs where, especially in large farrowing houses, avoiding commotion is imperative.

It is also a bit surprising to learn that all sheep are masculine and that if a goose is "caught by his legs they . . . will surely be broken."

Nevertheless, the authors pass along much good advice.—*[Restraint of Animals. By John R. Leahy and Pat Barrow. 2nd ed. 269 pages. Illustrated. Cornell Campus Stores, Inc., Ithaca, N. Y. 1953. Price $3.75]*—W. A. AITKEN.

THE NEWS

Ninety-Second Annual AVMA Convention—Minneapolis August 15-18, 1955

Municipal Auditorium Will House Sessions and Exhibits Housing Bureau Ready to Function—No Tours to Be Offered

As announced in the January JOURNAL, hotel information and a reservation form appear in this issue (adv. pp. 48 and 49) and will be printed in succeeding issues for several months. Those planning to attend the Minneapolis session are urged to make their reservations early.

HOUSING BUREAU

The Minneapolis Convention and Visitors Bureau will operate a housing bureau in cooperation with the Committee on Local Arrangements. This Bureau will process reservation requests and send out confirmations.

The locations of the 18 hotels which have allocated rooms for the convention are shown on the street diagram facing the reservation form.

CONVENTION AT AUDITORIUM—
PRECONVENTION SESSIONS AT HOTEL RADISSON

Since the regular convention sessions and exhibits will be held in the Minneapolis Auditorium, the Hotel Radisson has been engaged for the usual preconvention sessions of official bodies and other groups. Consequently, the Radisson is not included among the hotels listed in the reservation form. The bloc of rooms allocated by the Radisson will be used for housing Association officers, board members, delegates, exhibitors, and others, and

The Minneapolis skyline as seen from the east bank of the Mississippi River. Nicollet Island is in the foreground. The long low building across the river (right) is the U.S. Post Office.

reservations at this hotel will be handled entirely by the AVMA office in Chicago and not by the Housing Bureau. Any requests received directly by the Radisson will be referred to the AVMA office.

NO AVMA TOURS PLANNED—VACATION POSSIBILITIES

Because of its rather central location, the Association will not offer any tours in connection with the Minneapolis convention. However, the Minnesota lake country and the upper Middlewest offer unlimited vacation possibilities and facilities for boating, fishing, and swimming and resort accommodations of all kinds. Future issues of the JOURNAL will give facts about Minneapolis and Minnesota, and also how to obtain information about vacation and resort accommodations.

First Research Fellow Reports on Further Study in Vienna

Dr. L. Meyer Jones, the first AVMA research fellow (1942), and now professor of veterinary pharmacology at Iowa State College, returned in August from a year spent at schools of veterinary medicine in Europe. With his family, Dr. Jones arrived in Vienna on Oct. 1, 1953, where for the next nine months, at the Tierärztliche Hochschule, he spent about two-thirds of his time teaching pharmacology, the balance in research and study. Later he visited 11 other European schools of veterinary medicine to study their educational methods and research techniques. He lectured for one week at Copenhagen and visited briefly at Stockholm, Oslo, Hannover, Perugia and Bologna (Italy), Cambridge, Liverpool, London, Edinburgh, and Glasgow. While in England he also visited the research laboratories at Weybridge in Surrey, the poultry station of the Animal Trust in Huntingdon, and certain commercial pharmaceutical laboratories.

Dr. Jones received the A.B. degree from DePauw University in 1935, his D.V.M. and M.S. degrees at Iowa State College in 1939, and his Ph.D. from the University of Minnesota in 1945. His textbook "Veterinary Pharmacology and Therapeutics," published in January, 1954, was welcomed as the first new book in its field in many years (*see* JOURNAL, May, 1954, p. 405).

Dr. Jones reports that repairs had recently been completed on the 200-year-old Vienna school which was struck by seven bombs during World War II. It includes 22 institutes and clinics, each with a professor in charge. Research activities are incorporated into the program of the individual institute; in fact, only one veterinary school visited in Europe had a separate and distinct research institute. In Vienna, one of the professors is elected each two years to serve as rector and to have charge of all school activities.

The curriculum at the Tierärztliche Hochschule in Vienna, which has approximately 275 students, is arranged as a five-year course, but one or more additional years may be required by a student to prepare for and pass course examinations. When a student believes himself prepared, he requests a public examination in each of the fundamental subjects studied during the first two years. A

Fig. 1—Dr. Jones (center) in the Institute of Pharmacology at the Tierarztliche Hochschule, Vienna, with Dr. Helmut Mathois (right) and Mr. Emil Lienert, leader of the Institute, discussing sheep parasites.

second period of examinations comes after the next two years of study, and the final examinations when the course is completed. After receiving the veterinary degree, the student may earn his doctor of veterinary medicine degree by doing supervised research at the school for an additional three to six months and submitting a thesis.

Currently, Austria has a surplus of veterinarians. Of nearly 1,300, about 200 are in government work, about 950 in private practice, 60 are employed in teaching and research, and about 50 serve as meat and milk inspectors.

Dr. Jones' year of study was sponsored chiefly by a Fulbright award but also in part by an AVMA Research Fund grant. Funds for the Fulbright Awards are provided from the sale of U.S. war surplus materials in the country where these materials were left at the end of the war. This money is administered jointly by the United States and the country concerned to promote the exchange of students, teachers, and research workers between the two nations. The study of foreign students and educators in this country is financed in parallel fashion. Applicants for appointments are screened by several agencies supervised by the U.S. Department of State. Dr. Jones is convinced, after talking to people throughout Europe, "that the best way to . . . promote international understanding and cooperation is to foster the exchange of students and educators—not soldiers and politicians." The Fulbright appointees are not politically "indoctrinated" but are urged to travel

as private citizens of the United States, each with his individual ideology. The belief is that by living with the people of a foreign country, they give a more accurate conception of our people than is often given by tourists from the United States.

The 8-year-old daughter and 11- and 14-year-old sons of Dr. and Mrs. Jones attended the customary Austrian schools but also took their American school books with them for home tutoring. The children soon learned the language and enjoyed skiing and other sports with their classmates. The entire family was very well received by the people of Austria. In fact, they appreciate the fine hospitality and genuine friendship extended to them wherever they visited.

Dr. Jones stated that the grant from the AVMA Research Council enabled him to interview 56 different veterinary practitioners throughout Austria and to study their therapeutic usages in the control of disease. These and other observations obtained by visits with veterinary teachers and experimentalists at schools and laboratories throughout western Europe are being summarized and will reach the members of the American Veterinary Medical Association in (1) a report soon to be submitted to the JOURNAL for publication; (2) by incorporation into a current experimental study on the pharmacology of the rumen to be reported later; and (3) by the incorporation of improved concepts of pharmacology and therapeutics in the next edition of "Veterinary Pharmacology and Therapeutics." Dr. Jones says "It is difficult to measure the benefits derived from a year's study abroad but, unquestionably, they are tremendous."

District of Columbia Association Gives $200 to AVMA Research Fund

The District of Columbia Veterinary Medical Association, at their fourth quarterly meeting on October 12, approved a recommendation of their executive committee that $200 be contributed to the AVMA Research Fund.

In the letter which accompanied the contribution, the Association expressed the hope that they might make additional grants to this important fund in the future.

Report on First Pan-African Congress for Zootechnics

The following report of the First Pan-African Congress for Zootechnics was prepared by Dr. Anthony E. Bott, Kansas City, Mo., who served as the representative of the AVMA, having been so designated by the Board of Governors, at the sessions of the Congress:

An excellent reception for the members and guests at the Hotel de Ville (Town Hall) was held as the introductory program of the Pan-African Veterinary Meeting of Zootechny, Algiers, Algeria, on Oct. 17, 1954. This reception demonstrated an effective local committee whose courtesies promoted a spirit of friendliness which will long be remembered.

Those in attendance at the opening session, on October 18, were welcomed by the governor general of Algeria and by Professor T. Bonadonna, the presiding officer for the first technical program. All sessions were held in a convention hall in the Hotel de Ville, which resembled a senate chamber. This room also serves the government of Algeria. Each daily program was presided over by a full set of officers which, because of the special interest and knowledge of the subject to be presented, was changed each day. The entire morning sessions were used in the presentation and discussion of a single subject. The agenda included artificial insemination, contagious peripneumonia (pleuropneumonia), trypanosomiasis, utilization of the meat resources of the African continent, rinderpest, bovine piroplasmosis, and mineral deficiencies.

The presentation and discussion covered in detail the methods used for disease control in the respective countries. The large herds and extent of range in South America, the nature of handicaps due to large herds and jungle areas in Africa, and the educational standards of the populace in certain of these areas, emphasizes the need for the application of animal husbandry in animal disease control and eradication programs. The interest and knowledge in zootechnical questions and conduct was emphasized by veterinary representatives in attendance from Spain, Portugal, France, Italy, Germany, Belgium, all African countries, and South America, as well as from the smaller Mediterranean countries. Those in attendance were outstanding men in veterinary science. Many serve in an official capacity in their respective countries.

Upon hearing reports and discussions on such diseases as contagious peripneumonia, rinderpest, piroplasmosis, and the problems they present, one becomes appreciative of the veterinary science program and cooperative spirit of those in agriculture in the United States. Only by cooperation has eradication and prevention of such disease menaces to agricultural economics and human welfare been possible. By all means let us continue to protect our livestock industry against these diseases by preventing the introduction of meat and animal matter, including game or poultry, from infected areas.

The African continent has a population of about 205,000,000 people, 90,000,000 to 100,000,000 cattle, and 200,000,000 sheep and goats. It is a country so vast that the cost of transportation from some areas exceeds the price of the commodity. Air transportation is not economical, due principally to lack in commerce for return transport. When African meat products become free from disease and are permitted to move in intracontinental

(Continued on page 152)

News From Washington

As of Jan. 6, 1955, the Department of Defense had not publicly announced its position relative to the "Doctor Draft Law" due to expire July 1, 1955. It is understood that Dr. Frank Berry, assistant secretary of defense (health and medical) believes an extension is necessary. The three Surgeons General (Army, Navy, and Air Force) are reported as on record requesting extension. **Information indicates the Department of Defense will ask Congress to extend the "Doctor Draft."** substantially in its present form, for another two years, or until July 1, 1957. One amendment probably will pertain to the deferment of a certain number of physicians for the purpose of permitting them to undergo residency training to meet requirements of the Armed Forces in certain specialties.

* * *

The authority for the **$100 monthly extra pay** for medical, dental, and veterinary officers will have to be extended by the 84th Congress if those entering on active duty after June 30, 1955, are to receive it. There has been no official word from the Pentagon on this subject.

* * *

During a conference of state health officers held in Washington recently, a resolution was adopted by them urging Congress to grant to the **Commissioned Corps of the Public Health Service** equal military and veteran status with Army, Navy, and Air Force personnel.

* * *

The U.S.D.A., in announcing the **end of the restriction on the importation of ruminants** from northern Mexico, effective Dec. 31, 1954 (see JOURNAL (Jan., 1955.71), advised persons interested in making imports of cattle, sheep, and goats to make application for import permits to local representatives of the Agricultural Research Service at designated ports of entry. District offices of ARS are located at Fort Worth and El Paso, Texas, and Phoenix, Ariz.

Assistant Secretary of Agriculture E. L. Peterson, in a notice in the **Federal Register,** Dec. 23, 1954, declared that it has been found that the emergency outbreak of the virus disease of sheep known as **scrapie,** referred to in a declaration dated Oct. 31, 1952, **has been eradicated** to the best of the Department's knowledge. He, therefore, found that the emergency arising out of the existence of such sheep disease no longer exists. The notice also included a statement that future limited outbreaks of scrapie would be handled without the declaration of an emergency.

* * *

The 84th Congress convened on Jan. 5, 1955, and as committee assignments are due in the near future, it is hoped that a list of the **membership of certain committees of the Senate and House** will be available for publication in an early issue of the JOURNAL. The chairman of each committee will, of course, be a member of the Democrat party. Also, members of that party will constitute the majority membership of each committee.

* * *

During January, over 250 **promotions ranging from grades GS-9 to GS-13 for veterinarians in the Agricultural Research Service throughout the country** were processed. These promotions are possible as a result of the Revised Classification Standards for veterinarians, published by the U. S. Civil Service Commission. The promotions cover positions in the Animal Inspection and Quarantine, Animal Disease Eradication, and Meat Inspection branches of ARS. Approximately 50 additional promotions will be effected in the near future. Some of these positions involve "in charge" assignments and will necessitate detailed study.

Constant evaluation of all veterinary assignments will be made during the next few months. These promotions are the result of persistent AVMA action begun almost three years ago.

(Continued from page 150)

trade in Africa, consumption will exceed production. It appears that a sensational increase in the African human population is underway. Also, that disease within the animal and human population and tribal wars in remote areas will no longer be accepted, and that the continent is well on its way toward becoming self-sufficient.

The attendance included 200 veterinarians and about 55 wives of veterinarians. I was proud to represent the American Veterinary Medical Association. The veterinary profession of the United States was held in sincere respect during the meeting. Those in attendance reflected a sincere and successful effort on the part of veterinarians from each country to promote scientific and technical information beneficial to the livestock industry.

I wish to sincerely thank the secretary general, Professor Dr. Carlos Luis de Cuenca for inviting Mrs. Bott and me to visit Spain, France, and French North Africa, and to thank Dr. Cuenca and the members of the Algerian Committees and their wives for their most gracious hospitality. May I also express my sincere appreciation and thanks to the members of the Board of Governors for the opportunity to represent the American Veterinary Medical Association.

s/ANTHONY E. BOTT.

STUDENT CHAPTER ACTIVITIES

For copy deadline, see "Among the States and Provinces"

Colorado Chapter.—The following served as officers of the Colorado A. & M. Student Chapter of the AVMA during the fall quarter: Stuart Lovelace, president; Jack Recht, vice-president; Frankee Eliot, secretary; Stan Teeter, treasurer; and Mel Anzick, athletic director. Dr. N. H. Booth, assistant professor of physiology, was elected faculty advisor.

Highlighting the activities of the quarter was an all-school rodeo sponsored by the Chapter on October 10.

Dr. J. L. Palotay, of the Monfort Cattle Company, Greeley, was guest speaker at the semi-monthly meeting on October 20. He discussed the aspects of the veterinary profession in large-scale cattle-feeding operations.

At the November 3 meeting of the Chapter, **Dr. R. W. Davis,** professor of anatomy, was guest speaker. He presented an illustrated narration of his experiences in the Veterinary Corps in Burma during World War II. **Dr. Macomber,** associate professor of surgery at the Medical School, University of Colorado, was guest speaker at the November 17 meeting. His topic for discussion was plastic surgery and, with the use of slides, he illustrated several cases of reconstructive surgery.

Dr. Tsu-Ling Chow, associate professor of pathology and bacteriology, was guest speaker at the December 1 meeting. He discussed his experiences in China and cited the differences in the veterinary field in that country.

s/BOB CHAULK, *Reporter.*

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Cornell Chapter.—The University of Cornell Student Chapter of the AVMA met on Oct. 26, 1954, to hear reports of representatives to state and national conventions. **Dr. Carne,** of the Australian Veterinary College, talked on the effects of environment on the veterinary problems in Australia.

At the November 17 meeting, the possibility of national board examinations was discussed. **Dr. F. H. Fox,** who had just returned from the Purdue conference on swine diseases, gave an illustrated talk on several important diseases in swine.

The annual Christmas party was held December 10 in the Bethel Grove Community Hall.

s/JANE NEWMAN, *Secretary.*

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Illinois Chapter.—The University of Illinois Student Chapter of the AVMA held four regular meetings during the fall semester. The speakers were: **Drs. F. A. Todd,** Arlington, Va; **T. H. Brasmer,** Danville; and **George Sheets,** the Chapter representative to the Seattle convention of the AVMA.

Social functions included the freshman welcome, the Halloween dance, and the Christmas party. In addition, a fall picnic was held for the first time.

The Chapter arranged for the freshmen to be taken on a tour through the clinic in order to familiarize them with the College facilities.

s/MARLIN KLECKNER, *Secretary.*

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Michigan Chapter.—The fall term of the Michigan State College Student Chapter of the AVMA featured talks by some of the state's leading veterinarians. A film, "The Rumen Story," was presented on October 21, by **Dr. C. F. Huffman** of the M.S.C. dairy department. On November 4, **Dr. Peter Babich,** Flint, spoke on "Economics of Practice." The mechanics of general practice, with special reference to the sterility problems in dairy cattle, was discussed by **Dr. Louis Newlin,** Romeo. The December 2 meeting was highlighted by a discussion of legal liability and malpractice problems by **Mr. Charles Morscheck,** Lansing.

s/JACK JEFFERIES.

• • •

Missouri Chapter.— At the regular monthly meeting of the University of Missouri Student Chapter of the AVMA on December 13, **Dr. V. Rathnasabapathy,** G.M.V.C., of the veterinary college in Madras, India, gave an interesting discussion of the people and government of India and explained the practice of veterinary medicine in that country. Dr. Rathnasabapathy

is now working on his Ph.D. degree at the University of Missouri. His project is an investigation into the causes of embryonic mortality in swine.

The Chapter voted to call the AVMA Student Loan Fund the Boyer-Matthews Memorial Fund in memory of John Boyer, Jr., and Jackson Matthews, late members of the senior class.

s/JERRY JOHNSON, *Secretary.*

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Student Deaths at Missouri.— John Boyer, Jr., a member of the senior class of the School of Veterinary Medicine, University of Missouri, was born at Warrensburg, Mo., on Sept. 20, 1930, and died Nov. 25, 1954. He was an active member of the Student Chapter, having served as treasurer, and was selected as the student delegate to the AVMA convention in Seattle. He is survived by his parents, Mr. and Mrs. John Boyer, Sr., his widow, and two small sons.

Jackson Matthews, a member of the senior class of the School of Veterinary Medicine, University of Missouri, was born at Oran, Mo., Aug. 8, 1909, and died Nov. 30, 1954. He was active in school activities and in the Student Chapter. Mr. Matthews, who had served in World War II, was buried with military rites. He is survived by his widow.

s/JERRY JOHNSON, *Secretary, Student Chapter.*

• • •

Ohio Chapter.—James L. Gabel, son of Mr. and Mrs. Linus A. Gabel, Fremont, Ohio, has been selected as the recipient of the 1954 Borden Award in veterinary medicine at the Ohio State University. Jim, who will receive his D.V.M. degree in June, 1955, was the member of the class to maintain the highest point-hour average during his first three years in the School of Veterinary Medicine.

Dr. Albert A. Gabel, Columbus, Ohio, a brother of this year's recipient, was the winner of the 1953 Borden Award. The Gabels of Ohio State are the first brothers in the nation to receive the award. Active in intramural sports, Jim is a member of Alpha Psi professional fraternity; Phi Eta Sigma, freshman scholastic honorary fraternity; and Phi Zeta, honorary fraternity in veterinary medicine.

Shortly before the students in veterinary medicine left for their Christmas vacation, the children of faculty and students assembled in the clinic building for the annual Christmas party sponsored by the Chapter.

s/W. HAROLD DAVIS, *Secretary.*

Moving?

Send your change of address to the JOURNAL of the American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill.

WOMEN'S AUXILIARY

The AVMA Research Fund and the Auxiliary.—Recently, I attended a meeting of a state regional group of women who were considering affiliating with the Women's Auxiliary to the AVMA. An important question asked was "What is the function of the AVMA Auxiliary?" An attempt was made to answer this significant question. At this time, mention will be made of only one important project of the Auxiliary—the AVMA Research Fund. Here is some information in a nutshell.

Dr. L. C. Ferguson, College of Veterinary Medicine, Ohio State University, is the current chairman of the AVMA Research Council. At the Auxiliary house of representatives meeting in Seattle last summer, Dr. Ferguson gave an excellent report of the activities of the Council. Since the research fellowships were established, 75 applications to the Research Council have been submitted from over half of the states in the country, and a few from Canada.

The first fellowship was awarded in 1942. Since that time, 130 fellowships have been granted. To date, 24 fellowships have been completed. Six research fellowships were granted for the current academic year.

The young men who have completed their fellowships did their work in the following fields: ten in large animals and poultry, nine in small animals, and five in areas related to the general field of veterinary medicine.

In the last two years, 36 of the women's auxiliaries have contributed $1,567 to the Research Fund. Because many of the auxiliaries operate on a very limited budget, this amount is significant and their cooperation is greatly appreciated. We should have every auxiliary contributing, even though it is in a small measure, to this vital and far-reaching project.

If each of the wives of the 16,641 veterinarians in our country would assume the responsibility for some small share in this project, they would support a growing fellowship program.

Let us hope that more auxiliaries will support this worthwhile project.

s/(MRS. E. A.) MARIAN WOELFFER, *Recorder.*

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Washington Auxiliary.—The Women's Auxiliary to the Washington State Veterinary Medical Association met at the Winthrop Hotel in Tacoma on Nov. 19-20, 1954.

At the business session, the following officers were elected: Mrs. Raymond Hostetler, Goldendale, president; Mrs. George Duby, Centralia, vice-president; Mrs. Floyd Dixon, Seattle, secretary-treasurer. The Auxiliary voted to donate $25 to the AVMA Student Loan Fund, and a committee was nominated to establish a loan fund for the veterinary students at Wash-

ington State College. The Auxiliary will also donate approximately $50 worth of books to the veterinary library at Washington State College, as they have done in previous years.

The social activities included brunch at Lakewood Terrace; an informal talk by Dr. Jo

The new officers of the Women's Auxiliary to the Washington State Veterinary Medical Association are (left to right): Mrs. Ray Hostetler, president; Mrs. Floyd Dixon, secretary-treasurer; and Mrs. George Duby, vice-president.

Browne Walker; an informal discussion of Christmas decorations and candles; a combination luncheon; a travelog by Dr. Ray Bradbury of Mount Vernon, Wash.; and the banquet and dance.

s/MRS. ALEX J. RYNCARZ, *Publicity Chairman.*

APPLICATIONS

Applicants — Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative By-Laws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., the names of applicants residing within the jurisdictional limits of the constituent associations shall be published once in the JOURNAL.

The following applicants have been certified as members of the constituent association that has jurisdiction over the area in which the applicant resides. This certification was made by the secretary of the constituent association in accordance with Section 2, Article X, of the Administrative By-Laws.

ALLEN, GEORGE T.
970 Murphy Ave., S. W., Atlanta, Ga.
D.V.M., Alabama Polytechnic Institute, 1949.

BROWN, WALTER W.
3340 E. Broad St., Columbus, Ohio.
D.V.M., Ohio State University, 1947.

JACOBS, DUANE P.
114 S. Burns Ave., Springfield, Minn.
D.V.M., Iowa State College, 1949.

JEROME, QUENTIN R.
136 S. 10th St., West Memphis, Ark.
D.V.M., Alabama Polytechnic Institute, 1942.

PARKER, BILLY Y.
701 Sargent St., Fort Worth, Texas.
D.V.M., Texas A. & M. College, 1954.

PELLETIER, RENE
2560 Bernier, St. Hyacinthe, Que.
D.V.M., School of Veterinary Medicine, Providence of Quebec, St. Hyacinthe, 1945.

RAE, HENRY L.
1772 Sargent Ave., St. Paul, Minn.
D.V.M., Ohio State University, 1919.

SCHONEMAN, BEN E.
Luverne, Minn.
D.V.M., Iowa State College, 1932.

SOERD, EVALD
11217 94th St., Edmonton, Alta.
V.S., University of Tartu, Estonia, 1929.

SYVERSON, CLIFFORD L.
208 S. Harrison St., Lake Mills, Iowa.
D.V.M., Iowa State College, 1945.

THOMAS, EDWIN W.
149 Westgate Drive, Lexington, Ky.
D.V.M., Texas A. & M. College, 1939.

WERRING, DONALD N.
Rt. 5, Brainerd, Minn.
D.V.M., Iowa State College, 1934.

WILLIAMS, JOHN R. M.
Box 1360, Wetaskiwin, Alta.
D.V.M., Ontario Veterinary College, 1954.

Applicants — Not Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative By-Laws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., notice of all applications from applicants residing outside of the jurisdictional limits of the constituent associations, and members of the Armed Forces, shall be published in the JOURNAL for two successive months. The first notice shall give the applicant's full name, school, and year of graduation, post office address, and the names of his endorsers.

First Listing

BERRY, VICTOR H.
Box 11, Ernest Harmon AFB., Stephenville, N. F.
D.V.M., Tuskegee Institute, 1951.
Vouchers: O. G. Werntz and J. D. Foote.

PRATHER, ELWIN R.
Box 1100, Honolulu, Hawaii.
D.V.M., Kansas State College, 1941.
Vouchers: J. A. Rehkemper and R. H. Morrison.

Second Listing

STONEBRAKER, ERNEST K., 1006 Cape Gloucester Ave., Wherry Housing, Barstow, Calif.

1954 Graduate Applicants

The following are graduates who have recently received their veterinary degree and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of student chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk

(*) after the name of a school indicates that all of this year's graduates have made application for membership.

First Listing

Iowa State College

WILSON, JOHN L., D.V.M.
1305 Bessie, Lawton, Okla.
Vouchers: D. A. Woesner and C. G. Isenberg.

Texas A. & M. College

CARDEILHAC, PAUL T., D.V.M.
c/o Veterinary Hospital, Oklahoma A. & M. College, Stillwater, Okla.
Vouchers: W. M. Rice and L. H. Moe.

GRIFFIN, CARL D., D.V.M.
630 Hamilton Ave., Menlo Park, Calif.
Vouchers: W. W. Armistead and J. P. Delaplane.

SPRINGER, LEWIS N., D.V.M.
Greer Veterinary Hospital, Dublin, Va.
Vouchers: J. E. Greer and W. R. Thompson.

Second Listing

Texas A. & M. College

CRESS, RONALD D., D.V.M., Box 717, Idaho Falls, Idaho.

Tuskegee Institute

JEFFRIES, ROLAND S., D.V.M., Box 87, Modesto, Calif.

U. S. GOVERNMENT

Veterinary Personnel Changes.—The following changes in the force of veterinarians in the U.S.D.A. Agricultural Research Service are reported as of Dec. 23, 1954:

NEW APPOINTMENTS

William C. Burnett, Helena, Mont.
Robert A. Gale, Jacksonville, Fla.
Lawrence F. Good, Jeferson City, Mo.
Elmer B. Howsley, Fort Worth, Texas.
John H. Klug Madison, Wis.
Joseph H. Robbins, Rochester, N. Y.
Howard M. Ropa, Portland, Ore.
David C. Wilke, Portland, Ore.
Harvey W. Young, Jefferson City, Mo.
Richard M. Zirkle, Beltsville, Md.

CANCELLATION of Appointment

Jacob Kalmanshohn, San Diego, Calif.

NAME CHANGE

From Eugene C. Bohaczewsky (Omaha, Neb.) to Eugene C. Bohachevsky.

RETURN from Military Furlough

Alvin Rotberg, Newark, N. J.

RETIREMENTS

Ellery M. Aldrick, Boston, Mass.
Dillard O. Browning, Union City, Tenn.
Daniel J. Malone, South St. Paul, Minn.
Claude Sevy, Salt Lake City, Utah.

RESIGNATIONS

Milton Altshuler, Baltimore, Md.
James H. Cass, Jr., Fort Worth, Texas.
Ray R. Cowart, Baton Rouge, La.
Malcolm T. Barksdale, Jr., Columbia, S. Car.
Raymond J. Brugger, Kansas City, Kan.
Harvey H. Buchholz, Madison, Wis.
Charles G. Collins, Madison, Wis.
Sylvester D. Cronk, Madison, Wis.
Robert A. Hauser, Madison, Wis.
Edwin C. Humke, Madison, Wis.
Julius L. Kuenster, Madison, Wis.
Leonard J. Larson, Madison, Wis.
Carl L. Lee, Madison, Wis.
Dean F. Ludvigson, Madison, Wis.
Frederick Madson, Madison, Wis.
Elery J. Meyer, Madison, Wis.
Joe M. Miller Albuquerque, N. M.
William E. Morris, Madison, Wis.
Raymond E. Pinkert, Madison, Wis.
Lloyd C. Skow, Albuquerque, N. M.
Janina M. Soltowski, St. Paul, Minn.
Jerome C. Speitz, Madison, Wis.
John G. Thomas, Madison, Wis.
Marvin H. Westerfeldt, Madison, Wis.
William H. Woodard, Madison, Wis.
John B. Woodward, Madison, Wis.

SEPARATION

S. Lee Shepard, Springfield, Mass.
Howard L. Underwood, Houston, Texas.

TRANSFERS

Wiley W. Bird, from Sioux City, Iowa, to Chicago, Ill.
James C. Bolton, from Omaha, Neb., to St. Joseph, Mo.
Roderick Brenes, from Portland, Ore., to Seattle, Wash.
James H. Brink, from Sioux City, Iowa, to Albany, N. Y.
Stokes H. Burgess, from South St. Paul, Minn., to St. Paul, Minn.
William O. Caplinger, from Buffalo, N. Y., to Washington, D. C.
Elvin R. Coon, from Charleston, W. Va., to Boston, Mass.
Herschel D. Dorman, from Mexico City, Mex., to Baton Rouge, La.
Emil O. Gisel, from National Stockyards, Ill., to Sioux City, Iowa.
William L. Ikard, from Spokane, Wash., to Great Falls, Mont.
O. E. Jung, Jr., from Chicago, Ill., to Union City, Tenn.
Henry E. Martin, from Albuquerque, N. M., to Columbia, S. Car.
Walter R. Merryman, from South St. Paul, Minn., to St. Paul, Minn.
Gerald V. Peacock, from Fort Dodge, Iowa, to Omaha, Neb.
Henry L. Rae, from South St. Paul, Minn., to St. Paul, Minn.
Seymour Rook from New York, N. Y., to Buffalo, N. Y.
Benners B. Vail, Jr., from Memphis, Tenn., to Houston, Texas.
Andrew L. Walsh, from South St. Paul, Minn., to St. Paul, Minn.

AMONG THE STATES AND PROVINCES

The deadline for news copy is the 24th of the month, two months preceding the month of issue.

Arizona

Officers of State Association.—At the annual meeting of the Arizona Veterinary Medical Association, Dec. 1-2, 1954, the following officers were elected: Drs. George S. Calderwood, Chandler, president; J. L. Hinds, Tuscon, president-elect; and Ray Hinshaw, Buckeye, secretary-treasurer. s/J. B. McQUOWN.

British Columbia

Death of Dr. George Hilton.—Dr. George Hilton, 82, former veterinary director general, Health of Animals Division, Dominion Department of Agriculture, and long-time member

Dr. George Hilton

(1918-1932) and chairman (1920-1922) of the AVMA Executive Board, died on Oct. 6, 1954, in Vancouver where he had lived in recent years.

Born in Verkator, Russia, where his father was employed in the British Consulate, he was brought home to England and attended Grosvenor House Private School where he won honors in chemistry. The family came to Canada in 1888 and George Hilton graduated from Ontario Veterinary College in 1897. He entered general practice in Portage la Prairie, Man., in partnership with the late Dr. J. G. Rutherford, and carried on the practice when the latter was appointed veterinary director general. In 1905, Dr. Hilton was made chief veterinary inspector and was active in the early work of the Health of Animals Branch. For a time he was stationed in Regina and organized an effective animal disease control service there.

In 1924, he was promoted to succeed the late Dr. F. Torrance as veterinary director general, an office he held until retirement in 1938. He enjoyed an international reputation, attended various international meetings and congresses, and received the honorary degree of D.V.M. from the University of Montreal in 1936.

He was active in veterinary association work and was president of the Central Canada Association for nearly a decade. He joined the AVMA in 1911, was elected to the Executive Board in 1918, served for fourteen years as a member from District I (Canada), and was chairman of the Board from 1920 to 1922.

He is survived by his widow; two sons, Dr. George Hilton of Vancouver and Dr. James Hilton of Ottawa, both of whom are physicians; and a daughter, Mrs. D. B. Code of Brockville.

California

Midwinter Conference.—The annual midwinter conference of the California State Veterinary Medical Association was held Jan. 24-26, 1955, at the School of Veterinary Medicine, University of California, Davis.

The following guest speakers participated in the program: **Drs. C. B. Bills,** Modesto; **J. Kenneth Bone,** Chicago, Ill.; **George R. Burch,** Pitman-Moore Co., Indianapolis, Ind.; **David L. Coffin,** head, Department of Pathology, Angell Memorial Animal Hospital, and instructor in pathology, Harvard Medical School, Boston, Mass.; **Wyland S. Cripe,** Elk Grove; **Floyd Cross,** dean, School of Veterinary Medicine, Colorado A. & M. College, Fort Collins, and president-elect of the AVMA; **Paul D. Delay,** Sacramento; **Darr Jobe,** San Gabriel; **Keith Kelley** (M.D.), Duarte, Calif.; **Gordon H. Keown,** Washington State College, Pullman; **Philip L. McClave,** Reseda; **Kenneth McEntee,** Cornell University, Ithaca, N. Y.; **Rankin W. McIntyre,** Los Angeles County Livestock Department, Los Angeles; **Karl F. Meyer,** Medical Center, University of California, San Francisco; **A. Grant Misener,** Chicago, Ill.; **Richard L. Ott,** Washington State College, Pullman; **Charles H. Reid,** Hollywood; **William K. Riddell,** Los Angeles; **Charles W. Riggs,** University of California, Berkeley; **Seymour R. Roberts,** Richmond; **Myron Thom,** Pasadena; **Frank Wayland,** Salinas; **Ralph D. Westfall, Jr.,** Colusa; and **W. J. Zontine,** Lancaster.

Members of the School of Veterinary Medicine and Experiment Station at Davis who participated in the conference were: **Drs. Henry E. Adler, Norman F. Baker, Robert M. Cello, H. H. Cole, J. A. Howarth, B. V. Lundberg, Delbert G. McKercher, John W. Osebold, E. A. Rhode,** and **Clyde Stormont.**

The program of the Western States Poultry Disease Workers Conference was held in connection with this meeting.

S/CHARLES S. TRAVERS, *Executive Secretary.*

Connecticut

State Association.—A quarterly meeting of the Connecticut V.M.A. was held at Waverly Inn, Cheshire, May 5, 1954, with 65 members and guests present. Dr. J. G. DeVita, a vice-

president and the Association's representative to the Connecticut Committee on Foods and Drugs, as chairman, had arranged for a panel discussion on the "for veterinary use law." Members of the panel were: **Drs. Herbert P. Plank**, chief of the Drugs, Cosmetics, and Devices Committee of the Connecticut State Food and Drug Commission; **James Hart**, member, Connecticut State Department of Health; **D. D. Bonnycastle**, Department of Pharmacology, Yale University, New Haven; **Nicholas W. Fenney**, professor of pharmacology, College of Pharmacy, University of Connecticut; and **Harry J. Fischer**, chief chemist, Connecticut Agricultural Experiment Station, New Haven. The discussion was most interesting and educational.

s/NIEL C. PIEPER, *Resident Secretary.*

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Fairfield County Association.—At the regular annual meeting of the Fairfield County Veterinary Medical Association held at Cobbs Mill Inn, Westport, on Dec. 8, 1954, the following officers were elected: Drs. John H. Nickerson, Stamford, president; Maurice H. Ryan, Stamford, president-elect; and William R. Leggett, Westport, secretary-treasurer. The following were elected to the executive committee: Drs. Howard C. Raven, Bridgeport; Sidney Stern, Stamford; George G. Pickett, Stratford; and Edward J. Burke, Southport; in addition to the elected officers. The Committee on Ethics is composed of Drs. Chester E. Guthrie, Wilton; Edward D. Lubin, Danbury; Donald Krushak, Bridgeport; Wallace F. Vail, Greenwich; and Robert A. Rands, Stamford.

Dr. John Heller, Wilton, discussed the new research laboratory under construction at Grove Street in Ridgeleld which is to be called the New England Institute of Medical Research. The research will involve, primarily, work with radioactive materials. The facilities will include a clinic, an isotope laboratory, and an atom smasher.

s/WILLIAM R. LEGGETT, *Secretary.*

Delaware

State Association.—The annual meeting of the Delaware Veterinary Medical Association was held at Lepore's Restaurant in Dover on Dec. 9, 1954. With 45 members and guests in attendance, this meeting was one of the most successful the Association has had.

The program speakers were **Drs. W. R. Teeter**, Dover, state veterinarian; **M. S. Cover**, University of Delaware, Newark; **C. L. Blakely**, Angell Memorial Animal Hospital, Boston; and **A. W. Patterson, Jr.**, Hanover Shoe Farms, Inc., Hanover, Pa. The following officers were elected: Drs. George Rosenberger, Wilmington, president; L. G. Manogue, Seaford, president-elect; and Clarence Woodhouse, Newark, secretary-treasurer.

s/E. F. WALLER, *Resident Secretary.*

Georgia

Business Meeting of State Association.—The fifth semiannual business meeting of the Georgia Veterinary Medical Association was held at the Hotel Dempsey, Macon, on Dec. 5, 1954, with 115 veterinarians in attendance.

Besides regular business of the Association, certificates of honorary membership were awarded the following: Lee Smith, Atlanta branch manager, Jen-Sal Laboratories; Ambrose Green and Frank Alexander, L. A. Mosher Co.; the Hon. Tom Linder, retiring commissioner of agriculture; J. H. Milner, Pitman-Moore Co.; Lamar Roberts formerly with Winthrop-Stearns Co.; and R. Carl Sutton, owner of the Albany Serum Co.

The highlight of the meeting centered around the proposed joint federal and state brucellosis program, with **Drs. C. J. Mikel** and **J. W. Mann** outlining the program.

The Association also donated $300 to the University of Georgia, School of Veterinary Medicine, for student research under the guidance of a faculty committee.

s/CHAS. C. RIPE, *Secretary.*

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Dr. Sikes Joins University Staff.—Dr. Dennis Sikes, formerly professor of veterinary science at the University of Tennessee, Knoxville, has accepted the position as head of the Department of Pathology and Parasitology at the University of Georgia, Athens, effective Feb. 1, 1955.

Illinois

Animal Care Panel.—The Animal Care Panel held its fifth annual meeting at the Medical School of Northwestern University, Chicago, Dec. 1-2, 1954.

Dr. N. R. Brewer, president of the group, led the discussions. **Drs. Norman S. Wolf**, Chicago, **Wayne H. Riser**, Skokie, and **Bennett J. Cohen**, San Francisco, Calif., appeared on the program. Disease and nutritional problems of the experimental animal were the subjects of discussion.

s/WAYNE H. RISER.

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Death of Dr. Lyle A. Gray.—Dr. Lyle A. Gray (OSU '32), of Bushnell, former president of the Illinois State Veterinary Medical Association and a member of the state veterinary examining board for several years, died suddenly on Oct. 6, 1954, of a heart ailment at the age of 44. He had been ill since his retirement from general practice in July, 1953. He had been a member of the AVMA since 1936.

Born Dec. 6, 1909, in Fulton County, Dr. Gray received his veterinary education at Ohio State University and had practiced in Bushnell for over twenty-two years. He took an active part in civic and community affairs, having served as alderman and mayor. He was past

president and honorary member of Rotary; and was a member of the Masons and Odd Fellows. He was also a partner in the Hummell and Gray Lumber Company.

He was married to the former Vera E. Shien in 1929 and is survived by his widow, a son, his mother, a sister, one niece, and a nephew.

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French Academy of Veterinary Medicine Honors Dr. Merillat.—At the session of Nov. 4, 1954, L'Académie Vétérinaire de France nominated Emeritus Editor L. A. Merillat as member *associe étranger* to succeed the late Dr. John R. Mohler who occupied that office through many years.

The official certificate announcing the nomination and a letter of felicitation from Professor C. Bressou, general secretary of the academy, arrived December 1.

Indiana

Northwestern Association.—On Dec. 2, 1954, the Northwestern Indiana Veterinary Medical Association met in Logansport to hear **Dr. V. B. Robinson** of Pitman-Moore Co., Zionsville, discuss swine diseases. **Drs. L. A. Barnes,** Indianapolis, and **J. Green,** state veterinarian, discussed the brucellosis program in the state.

The following officers were elected: Drs. R. F. Portman, Lafayette, president; and Leo Cahalan, Logansport, secretary-treasurer.

The women met at the residence of Dr. and Mrs. S. F. Gaynor to exchange Christmas gifts and enjoy a social hour.

The hosts were Drs. Leo Cahalan, S. F. Gaynor, C. E. Thomas, and their wives.

s/J. L. KIXMILLER, *Resident Secretary.*

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Sixth District Association.—The Sixth District (Ind.) Veterinary Medical Association met in Frankfort on Dec. 9, 1954. The following officers were elected: Drs. Harry E. Blair, Brownsburg, president; R. W. Hardin, Lebanon, vice-president; John Coltrain, Darlington, re-elected secretary-treasurer; and Kenneth B. Preston, Veedersburg, elected to the board.

The program consisted of a round-table discussion on current prices charged by practitioners.

Mrs. G. M. Blubaugh, wife of Dr. G. M. Blubaugh of Mechanicsburg, showed pictures and gave an interesting report of her trip through several countries in Europe which she visited during the past summer.

s/J. L. KIXMILLER, *Resident Secretary.*

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Wabash Valley Association.—The Wabash Valley Veterinary Medical Association met in Wabash on Dec. 15, 1954. The following officers were elected during the business meeting: Drs. Henry A Stevens, North Manchester, president; P. C. Clinger, Rochester, vice-president; and R. D. Matchett, Converse, secretary-treasurer.

The veterinarians and their wives enjoyed a Christmas program, following a dinner in the Honeywell Memorial Building.

Dr. and Mrs. N. A. Turner, Wabash, and Dr. and Mrs. D. J. Myers, Peru, were hosts.

s/J. L. KIXMILLER, *Resident Secretary.*

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Northeastern Association.—The following officers were elected at the December 14 meeting of the Northeastern Indiana Veterinary Medical Association: Drs. R. E. Allison, Decatur, president; E. V. Blume, Butler, vice-president; L. A. Shepherd, Kendallville, secretary-treasurer; and Eber Allen, Fort Wayne, to the board of directors.

s/J. L. KIXMILLER, *Resident Secretary.*

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Correction.—In the report of the meeting on brucellosis control (Jan. JOURNAL, p. 78), Dr. L. R. Barnes' location was given as Albany, N. Y. Dr. Barnes is now inspector in charge for Indiana and is stationed at Indianapolis. Dr. J. Green, state veterinarian, also attended this meeting. His name was omitted in the report.

Iowa

Cedar Valley Association.—On Nov. 8, 1954, the Cedar Valley Veterinary Medical Association met at Black's Tea Room in Waterloo, with 39 members present.

Dr. R. E. Kline, Melbourne, talked on beef cattle practice; **Dr. M. L. Sipe,** Parkersburg, displayed several time- and work-saving devices used in his practice. A local practitioner told of a bull which had reacted to the test for brucellosis, but which he was not able to tag and brand due to resistance on the part of the owner. In the meantime, the bull was moved to other premises. Several suggestions were made to combat this problem, but it was decided to table the matter pending investigation of further legal procedure by the practitioner involved.

s/D. A. BUCHANAN, *Secretary.*

Kansas

State Association.—The fifty-first annual convention of the Kansas Veterinary Medical Association was held in the Town House, Kansas City, on Jan. 6-8, 1955.

The following speakers addressed the convention during the scientific sessions: **Drs. Loyd E. Boley,** University of Illinois, Urbana; **Forrest E. Brutsman,** Traer, Iowa; **Lendall K. Firth,** North Canton, Ohio; **Lucille K. Georg,** (Ph.D.), U.S. Public Health Service, Atlanta, Ga.; **Kenneth B. Haas, Sr.** (Ed.D.), Loyola University College of Commerce, Chicago; **Herbert W. Howell,** University of Missouri, Columbia; **Frank W. Jordan,** Abilene; **Harold C. McDougle,** University of Missouri, Columbia; **William G. Magrane,** Mishawaka, Ind.; **Edgar W. Millenbruck,** Carthage, Mo.; **Lester**

Proctor, Oelwein, Iowa; and **William M. Theis, Jr.**, Hillsboro.

s/K. MAYNARD CURTS, *Secretary.*

Kentucky

State Association.—The winter meeting of the Kentucky Veterinary Medical Association was held at the Kenlake Hotel in Hardin on Dec. 8-9, 1954.

The following speakers participated in the program: **Drs. W. S. Gochenour**, Indianapolis, Ind.; **Kenneth Whittington**, Memphis, Tenn.; **Robert Singer**, Lexington; **J. V. Moore**, Hayti, Mo.; **L. L. Breeck**, Frankfort; **A. S. Barnes**, Frankfort; **W. O. Greene**, Nashville, Tenn.; **James Crouch**, Glasgow; and **H. A. Gray**, Bowling Green.

During the business session, the following officers were elected: Drs. W. W. Boyd, Hodgenville, president; John Miller, Clinton, president-elect; H. A. Gray, Bowling Green, vice-president; and Robert J. Ausherman, Lexington, secretary-treasurer.

s/T. J. STEARNS, *Resident Secretary.*

Maine

Dr. Witter Elected Kiwanis Lieutenant Governor.—Dr. J. F. Witter (MSC '32), Orono, was recently elected as Kiwanis Lieutenant Governor of the New England district. He has served as president and director of his local Orono-Old Town, Maine, Kiwanis Club.

Dr. J. F. Witter

Dr. Witter has been at the University of Maine since he received his D.V.M. degree and is now professor of animal pathology, and head, Department of Animal Pathology, at that institution. He has been active in civic affairs, serving as chairman of the Boy Scout troop committee, twice president of the P.T.A., in Red Cross fund campaigns, and other organizations.

He has been president of the Maine Veterinary Medical Association and is now serving as secretary-treasurer of that organization.

s/H. L. CHUTE, *Resident Secretary.*

Massachusetts

State Association.—The regular monthly meeting of the Massachusetts Veterinary Association was held at the Hotel Beaconsfield in Boston on Dec. 15, 1954.

The guest speakers were **Drs. Todd O. Munson**, clinician, and **David L. Coffin**, pathologist, Angell Memorial Animal Hospital, Boston.

s/C. LAWRENCE BLAKELY, *Secretary.*

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Worcester County Association.—At the Oct. 27, 1954, meeting of the Worcester County Veterinary Medical Association, the guest speaker was **Dr. Walter C. Ferrall**, U. S. Department of Agriculture. Other state and federal veterinarians in attendance were Drs. E. R. Coan, director of animal disease eradication for Massachusetts, Connecticut, and Rhode Island; Dr. A. F. Ranney, director in general of the U.S.D.A., Animal Disease Eradication Branch, Washington, D. C.; and Drs. R. R. Allen and H. Polonsky, federal area veterinarians. They discussed the current brucellosis program.

The guest speaker at the December 8 meeting was **Edna Du Buis** of the Jackson Memorial Laboratory, Bar Harbor, who discussed emotional behavior of dogs.

s/DONALD W. HEY, *Secretary.*

Michigan

Mid-State V.M.A. Organized.—A new local association, the Mid-State Veterinary Medical Association, was formed in October, 1954, making the eighth local veterinary group now active in the state. Because of its location, the Mid-State has a large and diversified membership potential comprising practitioners, state and federal officials, faculty members, and others.

The association adopted a constitution and elected its first slate of officers on Oct. 28, 1954, comprising Drs. Bernard S. Zeeb, Lansing, president; Sherl A. Belding, Lansing, vice-president; and Robert E. Kader, East Lansing, secretary-treasurer. Meetings, except in November and December, will be held on the fourth Thursday of each month; the annual meeting will be in October.

s/ROBERT A. KADER, *Secretary.*

Missouri

Kansas City Association.—On Dec. 14, 1954, the Kansas City Veterinary Medical Associa-

tion met in the Livestock Exchange Building to hear **Dr. Mark E. Davenport,** assistant director, Veterinary Research Department, Armour Laboratories, Chicago, discuss the clinical use of proteolytic enzymes in the treatment of diseases associated with suppuration and necrosis. **Dr. Frank Todd,** Arlington, Va., made available a film on blue tongue in sheep. This was of special interest, since outbreaks of the disease have been reported in both Missouri and Kansas.

s/J. C. DAVIS, *Secretary.*

Nebraska

State Association.—The fifty-eighth annual meeting of the Nebraska Veterinary Medical Association was held at the Hotel Cornhusker in Lincoln on Dec. 1-3, 1954.

The following speakers addressed the scientific session: **Drs. A. H. Craige,** Indianapolis, Ind.; **E. J. Frick,** Manhattan, Kan.; **J. R. Knappenberger,** Lincoln; **M. D. Bahensky,** Palmer; **J. M. Barbee,** Sutton; **Lester Burkert,** Nebraska City; **Thomas C. Chudomelka, Jr.,** Clarkson; **D. F. Walker,** Broken Bow; **L. T. Railsback,** Ellsworth, Minn.; **Arthur Case,** Columbia, Mo.; **J. E. Mosier,** Manhattan, Kan.; **Ordela Gisler,** Lincoln; **A. B. Hoerlein,** Lincoln; **E. W. Peck,** Auburn; **Dale Kinyon,** Superior; **Jack Ray,** White Hall, Ill.; and **Jack Cady,** Arlington.

The following officers will serve the Association in 1955: Drs. N. W. Kruse, Genoa, president; W. J. Simic, Beatrice, president-elect; and W. T. Spencer, Lincoln, secretary-treasurer.

s/PAUL L. MATTHEWS, *Resident Secretary.*

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Dr. Person Elected to Fifth Term in Senate.—Dr. O. H. Person (KCV '13), Wahoo, on Nov. 2, 1954, was elected to his fifth term as state senator from the seventeenth district of Nebraska. After receiving his D.V.M. degree, Dr. Person practiced in Wahoo for thirty-five years, served as mayor of Wahoo for sixteen years, as president of the League of Municipalities of Nebraska, as president of the Saunders Co. Agricultural Association, and has been active in the Lions Club, Chamber of Commerce, and other civic groups. Dr. Person has also served as president of the Nebraska Veterinary Medical Association and has been a member of the AVMA since 1935.

s/PAUL L. MATTHEWS, *Resident Secretary.*

Dr. O. H. Person

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Death of Mr. George Tunison.—Mr. George Tunison, 71, Omaha, legal counsel for Associated Serum Producers, was stricken with a fatal cardiac attack while attending a meeting of that group in Kansas City on Nov. 29, 1954.

The veterinary profession will remember Mr. Tunison as the principal attorney in an anti-trust trial against Associated Serum Producers in federal district court in Chicago several years ago. The litigation involved the right of individual members of the producers' group to confine their sales to qualified veterinarians only. After a two-weeks' trial, the jury returned a verdict favorable to the producers in twenty minutes.

New Jersey

Metropolitan Association.—The Metropolitan New Jersey Veterinary Medical Association met at the Academy of Medicine in Newark on Jan. 19, 1955, to hear **Dr. James G. Archibald,** associate professor, Department of Medicine and Surgery, Ontario Veterinary College, Guelph, discuss small animal surgery.

s/MYRON S. ARLEIN, *Secretary.*

North Carolina

Two Wings of Research Laboratory Completed.—Two wings of the Animal Disease Research and Diagnosis Laboratory, at the State College, Raleigh, have recently been put into service. The building should be completed in the next biennium at a total cost of about $167,000.

Dr. J. C. Osborne (MSC '49) is head of the Veterinary Department at the College and Dr. D. E. Cooperrider (OSU '36) is in charge of the diagnostic laboratory.

Oklahoma

Oklahoma County Association.—On Dec. 8, 1954, the Oklahoma County Veterinary Medical Association elected the following officers: Drs. Warren C. Schilb, Oklahoma City, president; Luther E. Wilcoxson, Shawnee, vice-president; and Carl L. Clark, Oklahoma City, secretary-treasurer.

s/C. H. FAUKS, *Resident Secretary.*

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Dr. Krull Honored.—Dr. Wendell H. Krull (COL '45) parasitologist at the Oklahoma A.

& M. School of Veterinary Medicine, recently received an award from that school's chapter of Sigma Xi, as the college's outstanding scientist of 1954. He spoke to the Chapter on "The Story Behind the Parasite in the United States."

Ontario

Scrapie Diagnosed in Ontario.—Finding a case of scrapie (prurigo lombaire) in Ontario, in October, has caused the Health of Animals Division, Department of Agriculture, Canada, to issue an order prohibiting, until further notice, the importation of sheep from the United Kingdom.

Pennsylvania

University Establishes Research Affiliation with Mexican Institution.—The School of Veterinary Medicine, University of Pennsylvania, has established a cooperative research affiliation with the Mexican government's Institute of Livestock Research (Institute de Investigaciones) at Palo Alto, near Mexico City. This institute was established about ten years ago with the aid of this country to combat foot-and-mouth disease. Dr. Fernando Camargo is director of the Institute.

Dr. Goeffrey Rake, microbiologist on the faculty of the School of Veterinary Medicine of the University of Pennsylvania, will serve as chairman of the university affiliates. Dr. Carlos Espana, a native of Mexico with graduate training at the Hooper Foundation, University of California, has also been appointed by the Pennsylvania school, to work with others of the faculty on the projects. The zoonoses, anaplasmosis, shipping fever, and other bovine diseases will be studied. The affiliation was arranged and largely supported by the Foreign Operations Administration, jointly with E. R. Squibb and Sons, Inc.

The dedication exercises on Nov. 17, 1954, were attended by Dean M. W. Allam and several others from University of Pennsylvania.

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Conference of Veterinarians.—The fifty-fifth annual conference of veterinarians, sponsored by the University of Pennsylvania, was held at the University on Jan. 4-5, 1955.

The following guest speakers participated in the program: **Drs. Francis T. Candlin**, Denver, Colo.; **C. D. Van Houweling**, director, Livestock Regulatory Programs, Department of Agriculture, Washington, D. C.; **W. C. D. Hare**, Royal (Dick) School of Veterinary Studies, Edinburgh, Scotland; **J. Hubley Schall**, chief, Miscellaneous Diseases Division, Bureau of Animal Industry, Harrisburg; **A. H. Quin**, Kansas City, Mo., president of the AVMA; **Fernando Comargo**, director del Instituto de Investigaciones, Pecuarias de la Secretaria de Agricultura y Ganaderia, Mexico City, Mex.; **Kenneth McEntee**, New York State Veterinary College, Ithaca; **A. L. Bortree**, Pennsylvania State University, State College; **R. F. Vigue**, Springvale, Maine; **J. A. Muffly**, Lewisburg, **J. E. Croshaw**, Ithaca, N. Y.; **D. L. Proctor**, Lexington, Ky.; **R. L. Ticehurst**, Red Bank, N. J.; and **L. R. Barto**, Basking Ridge, N. J.

Members of the staff of the School of Veterinary Medicine of the University of Pennsylvania who participated in the program were: **Drs. Robert S. Brodey, Dean Mark W. Allam, Leonard Krawitz, E. L. Stubbs, John D. Beck**, and **A. V. Bartenslager.**

Dr. S. F. Scheidy, Drexel Hill, was chairman of a question-answer session held during the luncheon on Wednesday. Those in attendance enjoyed the annual conference dinner which this year was sponsored by the Veterinary Alumni Society.

s/MARK W. ALLAM, *Dean.*

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Bucks-Montgomery Association.—Members of the Bucks-Montgomery Veterinary Medical Association met on Dec. 15, 1954, to hear **Dr. S. K. Sinha**, director of the poultry diagnostic laboratory, National Agricultural College, discuss poultry problems.

s/VINCENT W. RUTH, *Secretary.*

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Dr. Derk Elected to State Senate.—Dr. M. R. Derk (UP '13), Jersey Shore, was elected in November, 1954, to the Pennsylvania state senate from the twenty-fourth senatorial district. He is also president of the Northern Tier Veterinary Medical Association and is active in many other organizations.

Dr. M. R. Derk

Prince Edward Island

Prince Edward Island Association.—At a recent meeting of the Prince Edward Island Veterinary Medical Association, Dr. James I. Higgins, Charlottetown, was elected secretary-treasurer of the Association.

s/M. I. LOWRIE.

Tennessee

State Association.—The forty-seventh annual meeting of the Tennessee Veterinary Medical Association was held Jan. 9-11, 1955, at the Hotel Andrew Johnson in Knoxville.

The following speakers addressed the group: **Drs. C. T. Carraway,** public health veterinarian, Nashville; **W. O. Green,** Nashville; **J. E. Greene** and **W. J. Gibbons,** School of Veterinary Medicine, Alabama Polytechnic Institute, Auburn; **H. E. Hill,** Maryville; **H. E. Kingman, Jr.,** Chicago, assistant executive secretary of the AVMA; **C. E. Kord,** state veterinarian, Nashville; **H. W. Nance,** Lawrenceburg; **Dennis Sikes,** University of Tennessee, Knoxville; **C. C. Von Gremp,** Decatur, Ga.; **M. L. Walter,** Knoxville; and **Kenneth Whittington,** Memphis.

s/DENNIS SIKES.

Vermont

State Association.—The annual meeting of the Vermont Veterinary Medical Association was held in Montpelier on Nov. 27, 1954.

The guest speakers were **Commissioner E. E. Towne,** Vermont Department of Agriculture; **Dr. A. F. Ranney,** Washington, D. C.; and **Dr. John Canty,** state veterinarian, Montpelier.

During the business meeting, the proposed acceleration of the brucellosis program was discussed; Drs. Edward Melby, Middlebury, and Charles W. Gates, North Ferrisburg, were admitted as members to the Association; and the following officers were elected: Drs. J. F. Roberts, Woodstock, president; M. L. Bryant, Montpelier, president-elect; W. D. Bolton, South Burlington, vice-president; and A. E. Janawicz, Richmond, secretary-treasurer.

The Association is planning a summer conference to be held in June.

s/A. E. JANAWICZ, *Resident Secretary.*

Virginia

Resolution on Brucellosis Eradication Program.—The following resolution was adopted by the West Virginia Veterinary Medical Association at its annual meeting in Morgantown, W. Va., Oct. 31-Nov. 1, 1954:

WHEREAS, animal disease eradication has paid good dividends from the standpoint of an abundant food supply of animal origin, protection to the livestock industry, and safe-guarding the public health; and

WHEREAS, the Secretary of Agriculture has been granted funds for this purpose and we have been assured that the policy of the Agricultural Research Service of the United States Department of Agriculture provides for calling on practicing veterinarians for service on the brucellosis eradication project at the farm level;

THEREFORE, BE IT RESOLVED: That the West Virginia Veterinary Medical Association express appreciation to the Agricultural Research Service, United States Department of Agriculture, for this constructive move.

We pledge our support to the West Virginia State Department of Agriculture and the United States Department of Agriculture in bringing to a successful conclusion the brucellosis eradication program in West Virginia and urge that State Livestock Sanitary Officials and Federal Veterinarians in charge of field work in West Virginia call on the executive officers of the West Virginia Veterinary Medical Association to cooperate in developing procedures in accordance with the policy of the State Department of Agriculture and the United States Department of Agricultural Research Service for eradicating brucellosis in domestic animals.

BE IT FURTHER RESOLVED: That a copy of the Resolution be sent to the Secretary of the American Veterinary Medical Association in Chicago, the Director of the Livestock Regulatory Program, Animal Research Service, Washington, D. C., the Commissioner of Agriculture and livestock Sanitary Officials both State and Federal, Charleston, W. Va.

s/C. H. MILLER, *President.*
s/E. R. COON, *Secretary-Treasurer.*

Washington

State Association.—The thirty-ninth annual convention of the Washington State Veterinary Medical Association, held Nov. 19-20, 1954, with 125 veterinarians in attendance, was the best meeting of the Association, attendance-wise, on record.

The new constitution and by laws adopted at this meeting provides that each local group within the state will appoint a member to represent the group on the board of the state Association, and that a treasurer shall be elected and a secretary appointed by the board. Resolutions on a lien law and on abandonment of animals were adopted and will be presented to the state legislature.

The following officers were elected: Drs. Don Clarke, Seattle, president; Roy Hostetler, Goldendale, president-elect; and Bernard Pinckney, Tacoma, treasurer. The secretary will be appointed by the board.

The South Puget Sound Veterinary Medical Association did an outstanding job as host to the group.

s/J. L. ELLIS, *Resident Secretary.*

• • •

Death of Dr. E. A. Ehmer.—Dr. E. A. Ehmer (WSC '18), 59, of Seattle, well-known practitioner, author and co-inventor of the Kirschner-Ehmer fracture splint, died suddenly on Christmas morning, Dec. 25, 1954. Born in Illinois and reared in Grandview, Wash., Dr. Ehmer received his B.S. and D.V.M. degrees from Washington State College. He was married to Carmen Scott in 1921, the same year in which he started practice in Seattle. He owned and operated the Seattle Veterinary Hospital for many years but had retired from active practice several years ago. He was a

frequent participant in the programs of veterinary medical associations and was a member of the state association and the AVMA, the latter for thirty-five years.

VETERINARY MILITARY SERVICE

Course on Diseases of Laboratory Animals.—Brigadier General Elbert deCoursey, director of the Armed Forces Institute of Pathology, welcomed a group including approximately 50 veterinarians from all sections of the United States, to a week's course on the pathology of the diseases of laboratory animals held at the Institute beginning Dec. 6, 1954.

The course, first of its kind ever conducted by the Institute, was arranged in response to a widespread demand for more information about the natural diseases incurred by animals used for laboratory purposes and how these diseases may be recognized, prevented, or cured. Colonel T. C. Jones, V.C., U. S. Army, chief of the Veterinary Pathology Section of the Institute, was director of the course, with Lt. Col. Dan P. Sasmore, V.C., U. S. Air Force, as the executive officer.

Some of the nation's best-known authorities on safeguarding the health of animals needed for the study of human disease problems comprised the faculty of the course: Drs. William H. Feldman, Mayo Foundation, Rochester, Minn.; Thelma Dunn, National Cancer Institute, Bethesda, Md.; A. M. Pappenheimer, emeritus professor of the Department of Bacteriology and Immunology, Harvard Medical School, Boston; F. S. Vogel, Air Force Radiobiology Laboratory, Balcones Research Center, University of Texas, Austin; Robert T. Haberman, National Institutes of Health, Bethesda, Md.; J. R. M. Innes, Chemical Corps Medical Laboratory, Army Chemical Center, Edgewood, Md.; C. R. Cole, professor of veterinary pathology at Ohio State University, College of Veterinary Medicine, Columbus; and Erwin Jungherr, Department of Animal Diseases, University of Connecticut, Storrs.

BIRTHS

Dr. (MIN '53) and Mrs. Philip J. Whalen, Ralston, Neb., announce the birth of twins—a daughter, Mary Clo, and a son, Philip James II—on June 23, 1954.

Dr. (KSC '54) and Mrs. M. L. Worthington, Brooklyn, Iowa, announce the birth of a son, Steven Lee, on June 28, 1954.

Dr. (UP '44) and Mrs. Jacob L. Kolodner, Philadelphia, Pa., announce the birth of a daughter, Jeanne Linda, on Sept. 19, 1954.

Dr. (KSC '54) and Mrs. Dean Darling, Seward, Neb., announce the birth of a daughter, Julie Ann, on Nov. 18, 1954.

Dr. (GA '52) and Mrs. David H. Spechler, Baltimore, Md., announce the birth of twins—a daughter, Julienne, and a son, Brent Allan—on Nov. 20, 1954.

Dr. (MSC '40) and Mrs. Nathan Miner, Pasadena, Calif., announce the birth of a son, Gary Steven, on Nov. 22, 1954.

Dr. (UP '42) and Mrs. Ernest J. Witte, Harrisburg, Pa., announce the birth of a son, Eric Henry, on Nov. 30, 1954.

Dr. (OSU '53) and Mrs. M. C. Jackson, Montpelier, Ind., announce the birth of a son, Robert Thomas, on Dec. 14, 1954.

Mr. and Mrs. (Irene Woods, WSC '47) John D. Bryant, Lakewood, Ala., announce the birth of a son, Marc Davis, on Dec. 18, 1954.

DEATHS

★**Paul K. Baker** (KSC '17), 61, Hastings, Neb., died Oct. 19, 1954. Dr. Baker was a general practitioner. He was a member of the Nebraska Veterinary Medical Association and of the AVMA.

★**Thomas G. Beard** (COL '27), 51, Los Angeles, Calif., died Nov. 15, 1954. Dr. Beard was well known for his work in animal surgery and as a breeder of champion dogs. He was a member of the California Veterinary Medical Association and of the AVMA. Survivors include his widow, twin daughters, and his mother.

William Bell (MCK '08), 71, Ishpeming, Mich., died Aug. 27, 1954. Dr. Bell had practiced in Ishpeming for forty-six years.

★**Paul Bernard** (OSU '29), 53, Sabina, Ohio, died Nov. 15, 1954, of a heart attack while hunting. Dr. Bernard, general practitioner, had served in World War II. He was a member of the Southwestern Ohio and Ohio State Veterinary Medical Associations and of the AVMA. Dr. Bernard is survived by his widow.

Ernest Buckley (NYS '95), 80, East Orange, N. J., died Aug. 3, 1954. Dr. Buckley was a small animal practitioner.

Floyd M. Collins (OSU '36), 44, Oakland, Neb., died May 5, 1954. Dr. Collins had been a member of the AVMA.

★**Emerson A. Ehmer** (WSC '18), 59, Seattle, Wash., died Dec. 25, 1954. An obituary appears on page 162 of this JOURNAL.

★**Fred Evans** (ONT '93), 84, Sioux Falls, S. Dak., died Aug. 30, 1954. He had been a general practitioner in Sioux Falls since 1912, and a member of the AVMA for thirty years. Survivors include one daughter, two half brothers, and one half sister.

James M. Galloway (GLA '13), 65, Richmond, Va., died Nov. 28, 1954. Dr. Galloway,

who was in general practice in Richmond for more than thirty-five years, had served with the British Army in World War I. He is survived by his widow, a son, a daughter, and three sisters. Dr. Galloway had been a member of the AVMA.

W. M. Gordon (ISC '05), Omaha, Neb., died recently. Dr. Gordon had been a member of the AVMA.

Harry J. Gray (MCK '07), 71, Kirklin, Ind., died in November, 1954. Dr. Gray was a general practitioner and a member of the Indiana Veterinary Medical Association. He had been a member of the AVMA.

★**Lyle A. Gray** (OSU '32), 44, Bushnell, Ill., died Oct. 6, 1954. An obituary appears on page 157 of this JOURNAL.

Fred R. Harris (CVC '06), 80, Hillsboro, Ill., died July 25, 1954. Dr. Harris, a general practitioner, had practiced in Hillsboro continuously since receiving his D.V.M. degree.

Wilford A. Haynes (GR '02), 79, Hillsdale, Mich., died Sept. 2, 1954. Dr. Haynes was for several years city meat inspector at Jackson, Mich. He had been a member of the AVMA.

★**George Hilton** (ONT '97), 82, Vancouver, B.C., died Oct. 6, 1954. An obituary appears page 156 of this JOURNAL.

★**Alfred G. Hutton** (USC '17), 62, Lexington, Va., died Aug. 14, 1954. Dr. Hutton was a member of the AVMA. He is survived by his widow.

S. R. Kennedy (WES '02), 78, Moline, Ill., died Sept. 8, 1954. Dr. Kennedy is survived by his son, Dr. Earl R. Kennedy (TH '15), who was in practice with him.

Harry F. Leighton (UP '09), 79, Pontiac, Mich., died Oct. 27, 1954, of a heart attack. Dr. Leighton had been a member of the AVMA.

Richard P. Lienhardt (UP '96), 81, Wayne, Pa., died in 1954. Dr. Lienhardt had practiced for more than forty-five years in Wayne at the time of his retirement eight years ago.

Paul S. Lindley (IND '04), 71, Paoli, Ind., died in November, 1954. Dr. Lindley, a general practitioner, was a member of the Indiana Veterinary Medical Association and had been a member of the AVMA.

William F. Ludwig (OSU '14), 70, Barnesville, Ohio, died Aug. 22, 1954. Dr. Ludwig had served as county veterinarian for Belmont county for several years.

Michael J. McGinty (IND '17), 65, Indianapolis, Ind., died Sept. 11, 1954. Dr. McGinty had served in World War I, and was for many years employed by the U. S. Bureau of Animal Industry.

James B. McNamara (KCV '11), 70, Columbus, Ohio, died Nov. 5, 1954. Dr. McNamara was a small animal practitioner. He had been a member of the AVMA.

★**Joseph E. Morris** (CVC '15), 62, Lima, Ohio, died Oct. 19, 1954. A general practitioner, Dr. Morris was a member of the Northwestern Ohio, West Central Ohio, and Ohio State Veterinary Medical Associations and of the AVMA.

John Murray (WSC '28), 70, Pullman, Wash., died Oct. 28, 1954. Dr. Murray served with the U. S. Agricultural Research Service.

James C. Norton (ISC '90), Los Angeles, Calif., died July 13, 1954. Dr. Norton had served as state veterinarian of Arizona for many years.

Henry V. Nothomb (KCV '08), 70, Omaha, Neb., died Oct. 5, 1954. Dr. Nothomb, a general practitioner, was a member of the Nebraska Veterinary Medical Association, and had been a member of the AVMA.

Arthur A. Rohrer (OSU '32), 56, North Hollywood, Calif., died April 8, 1954. Dr. Rohrer had been a member of the AVMA.

Harry A. Smith (MCK '09), Fort Lauderdale, Fla., died Nov. 1, 1954. Dr. Smith served with the U. S. BAI for several years and then established a general practice in Anderson, Ind. In his later years, he sold real estate, and had recently retired.

Macy Smotherman (TEX '25), Corsicana, Texas, died Sept. 22, 1954. Dr. Smotherman was a general practitioner.

★**Llewellyn N. Snyder** (ONT '02), 74, Dunnville, Ont., died Nov. 20, 1954. Dr. Snyder had practiced in Dunnville for more than fifty years. He was a life member of the AVMA. Dr. Snyder is survived by his widow, one brother, and one sister.

George W. Todd (ISC '22), 58, Lancaster, Calif., died Dec. 22, 1953. Dr. Todd had been a member of the AVMA.

Arvine J. Wolf (OSU '07), 74, Bolivar, Ohio, died recently. Dr. Wolf had practiced in Bolivar for forty-one years.

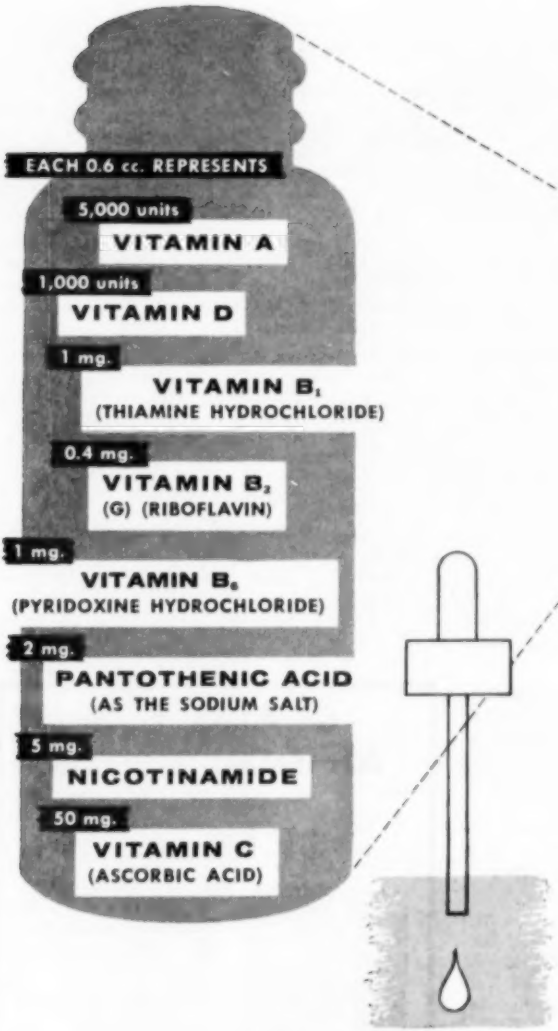
Donald A. Work (MCK '18), 63, San Benito, Texas, died July 21, 1954. Dr. Work was a general practitioner.

Correction.—★**John W. Foust** (IND '17), 65, Hope, Ind., died Oct. 13, 1954. Dr. Foust had practiced in Hope since receiving his D.V.M. degree, except for four years when he served as sheriff of Bartholomew County. He is survived by his widow, one son, and one daughter. Dr. Foust was a member of the Indiana Veterinary Medical Association and of the AVMA.

In the January JOURNAL (p. 84), Dr. Foust was erroneously identified as John W. Forest.

★**Charles W. Tate** (TEX '38), 40, Washington, D. C., whose obituary appeared in the December, 1954, JOURNAL (p. 510), was reported employed by the Agricultural Research Service, U.S.D.A. Actually, Lieutenant Colonel Tate was a patient in Walter Reed Army Hospital, Washington, D. C., at the time of his death. He had been on active duty with the Army since 1940, and during this time was on military leave from the old Bureau of Animal Industry and the present Agricultural Research Service.

★Indicates members of the AVMA.



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COMING MEETINGS

Notices of Coming Meetings must be received by 4th of month preceding date of issue

Louisiana State University. Annual conference for veterinarians. Louisiana State University, Baton Rouge, La., Feb. 1-2, 1955. W. T. Oglesby, head, Department of Veterinary Science.

New Jersey, Veterinary Medical Association of. Annual meeting. Hotel Essex House, 1050 Broad St., Newark, N. J., Feb. 3-4, 1955. J. R. Porteus, P. O. Box 938, Trenton 5, N. J., resident secretary.

Illinois State Veterinary Medical Association. Annual meeting. LaSalle Hotel, Chicago, Ill., Feb. 14-16, 1955. C. B. Hostetler, 1385 Whitcomb Ave., Des Plaines, Ill., executive secretary.

West Virginia Veterinary Medical Association. Winter meeting. Greenbrier Hotel, White Sulphur Springs, W. Va., Feb. 20-21, 1955. V. H. Miller, Box 2881, Charleston, W. Va., acting secretary.

Missouri Veterinary Medical Association. Annual meeting. Hotel Jefferson, St. Louis, Mo., Feb. 21-22, 1955. Anthony R. Bott, 102 Osage Dr., Collinsville, Ill., chairman, local arrangements.

Colorado A. & M. College. Annual conference for veterinarians. Glover Veterinary Hospital, School of Veterinary Medicine, Colorado A. & M. College, Fort Collins, Colo., Feb. 21-23, 1955. O. R. Adams, professor and director of clinics and surgery.

Manitoba Veterinary Association. Annual meeting. Winnipeg, Man., March 14-15, 1955. E. J. Rigby, 156 Princess St., Winnipeg 2, Man., secretary.

Alabama Veterinary Medical Association. Annual meeting. Thomas Jefferson Hotel, Birmingham, Ala., March 20-22, 1955. M. K. Heath, Small Animal Clinic, School of Veterinary Medicine, Alabama Polytechnic Institute, Auburn, Ala.

Washington State College. Spring conference for veterinarians. College of Veterinary Medicine, State College of Washington, Pullman, Wash., April 4-6, 1955. R. W. Leader, chairman, Spring Conference Committee.

Pennsylvania, University of. Postgraduate short courses for veterinarians. School of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pa., April 4-7, 1955. M. W. Allam, dean.

American Animal Hospital Association. Annual meeting. Hotel Statler, Detroit, Mich., May 4-7, 1955. Wayne H. Riser, Skokie, Ill., executive secretary.

Maryland State Veterinary Medical Association. Summer meeting. George Washington Hotel, Ocean City, Md., June 23-24, 1955. John D. Gadd, Cockeysville, Md., secretary.

American Veterinary Medical Association. Annual meeting. Municipal Auditorium, Minneapolis, Minn., Aug. 15-18, 1955. J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

New York State Veterinary Medical Society. Annual meeting. Hotel Statler, New York, N. Y., Sept. 14-16, 1955. Joan S. Halat, 803 Varick St., Utica, N. Y., acting executive secretary.

Foreign Meetings

Third International Congress of Biochemistry. Brussels, Belgium, Aug. 1-6, 1955. Claude Liebecq, 17 Place Delcour, Liege, Belgium, secretary general.

(Continued on p. 32)

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(COMING MEETINGS—*continued from p. 30*)

Regularly Scheduled Meetings

Atlanta Veterinary Society, the first Tuesday of every month. C. L. Bromley, Jr., 1634 Northside Dr., Atlanta Ga., secretary.

Baltimore City Veterinary Medical Association, the second Thursday of each month, September through May (except December), at 9:00 p.m. at the Park Plaza Hotel, Charles and Madison Streets, Baltimore, Md. Victor I. Sorgen, 133 Wiltshire Rd., Baltimore 21, Md., secretary.

Bay Counties Veterinary Medical Association, the second Tuesday of each month. George W. Eberhart, El Cerrito, Calif., secretary.

Cedar Valley Veterinary Association, the second Monday of each month. except July and August, at Black's Tea Room, Waterloo, Iowa. D. A. Buchanan, Grundy Center, Iowa, secretary.

Central Arizona Veterinary Medical Association, the second Tuesday of each month. F. R. Benton, 302 South Country Club Dr., Mesa, Ariz., secretary.

Central California Veterinary Medical Association, the fourth Tuesday of each month. Herbert Piper, 4990 Ventura Ave., Fresno, Calif., secretary.

Central Carolina Veterinary Medical Association, the second Wednesday of each month at 7:00 p.m. in the O'Henry Hotel in Greensboro. Dr. J. S. Ellis, 2450 Battleground Ave., Greensboro, N. Car., secretary.

Central Indiana Veterinary Medical Association, the second Wednesday of each month. L. M. Borst, 3315 Shelby St., Indianapolis, Ind., secretary.

Chicago Veterinary Medical Association, the second Tuesday of each month. M. E. Davenport, 30 S. 7th Ave., La Grange, Ill., secretary.

Coastal Bend Veterinary Association (Texas), the second Wednesday of each month. J. E. Hoban, 4301 S. Port Ave., Corpus Christi, Texas, secretary.

Coon Valley Veterinary Association, the second Wednesday of each month, September through May, at the Bradford Hotel, Storm Lake, Iowa. Dr. D. I. Lee, Sac City, Iowa, secretary.

Cuyahoga County (Cleveland, Ohio) Veterinary Medical Association, the first Wednesday of each month—September through May (except January)—at 9:00 p.m. at the Carter Hotel, Cleveland, Ohio. Roger W. Grundish, 4217 Mayfield Road, South Euclid 21, Ohio, secretary.

East Bay Veterinary Medical Association, bimonthly, the fourth Wednesday. Robert Clemens, 23352 Orchard, Hayward, Calif., secretary.

Eastern Illinois Veterinary Medical Association, the first Thursday of March, June, September,

(*Continued on p. 34*)

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and December. A one-day clinic is held in May. L. E. St. Clair, College of Veterinary Medicine, University of Illinois, Urbana, Ill., secretary.

Eastern North Carolina Veterinary Medical Association, the first Friday of each month, time and place specified monthly. C. B. Randall, Kinston, N. Car., secretary.

Fayette County Veterinary Association, Iowa, the third Tuesday of each month, except in July and August, at Pa and Ma's Restaurant, West Union, Iowa. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

Florida, North-East Florida Veterinary Medical Association, the second Thursday of each month, time and place specified monthly. J. O. Whiddon, 829 San Marco Blvd., Jacksonville, Fla.

Greater St. Louis Veterinary Medical Association, the first Friday of the month (except July and August) at the Sheraton Hotel, Spring Ave. and Lindell Blvd. Luther E. Fredrickson, Room 11, Municipal Courts Bldg., St. Louis, Mo., secretary.

Houston Veterinary Medical Association, Houston, Texas, the first Thursday of each month. Edward Lepon, Houston, Texas, secretary-treasurer.

Illinois Valley Veterinary Medical Association, the second Sunday evening of even-numbered months at the Jefferson Hotel, Peoria, Ill. S. M. McCully, Lacon, Ill., secretary.

Indiana Tenth District Veterinary Medical Association, third Thursday of each month. L. A. Snider, New Palestine, Ind., secretary.

Jefferson County Veterinary Society of Kentucky, Inc., the first Wednesday evening of each month, in Louisville or within a radius of 50 miles. Dr. W. E. Bewley, P.O. Box "H", Crestwood, Ky., secretary.

Kansas City Small Animal Hospital Association, the first Monday of each month, at the Hotel Continental. J. A. Zacher, 3632 Main St., Kansas City, Mo., secretary.

Kansas City Veterinary Medical Association, the third Tuesday of each month, at the Exchange Hall, Ninth Floor, Livestock Building, 1600 Genesee, Kansas City, Mo. J. C. Davis, 7332 Canterbury St., Kansas City 13, Mo., secretary.

Kern County Veterinary Medical Association, the first Thursday of each month. R. A. Stiern, 17 Niles St., Bakersfield, Calif., secretary.

Keystone Veterinary Medical Association, the Philadelphia County Medical Society Building, 301 S. 21st Street, Philadelphia, Pa., on the fourth Wednesday of each month. Raymond C. Snyder, 39th and Woodland Ave., Philadelphia 4, Pa., secretary.

Kyowva Veterinary Medical Association, the

(Continued on p. 36)

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second Thursday of each month in the Hotel Prichard, Huntington, W. Va., at 8:30 p.m. Karl Mayer, 1531 Fourth Ave., Huntington, W. Va., secretary.

Metropolitan New Jersey Veterinary Medical Association, the third Wednesday evening of each month from September through May, at the Academy of Medicine of Northern New Jersey, 91 Lincoln Park South, Newark, N. J. Myron S. Arlein, 2172 Millburn Ave., Maplewood, N. J., secretary.

Michiana Veterinary Medical Association, the second Thursday of each month, at the Hotel LaSalle, South Bend, Ind. Paul W. Hough, 829 Bryan St., South Bend, Ind., secretary.

Michigan, Southeastern Veterinary Medical Association, the second Thursday of every month, September through May. Gilbert Meyer, 14003 E. Seven Mile Road, Detroit 5, Mich., secretary.

Mid-Coast Veterinary Medical Association, the first Thursday of every even month. George McCollister, 2146 Broad St., San Luis Obispo, Calif., secretary.

Mid-State (Mich.) Veterinary Medical Association, the fourth Thursday of each month with the exception of November and December. Robert E. Kader, 5034 Armstrong Rd., Lansing 17, Mich., secretary.

Milwaukee Veterinary Medical Association, the third Tuesday of each month, at the Half-Way House, Blue Mound Rd. George F. Lynch, 201 West Devon St., Milwaukee 17, Wis., secretary.

Mobile-Baldwin Veterinary Medical Association, the first Tuesday of each month at the Hotel Admiral Simmes, Mobile, Ala. C. Eric Kennedy, Mobile, Ala., secretary.

Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. Lewis J. Campbell, 66 Marion Ave., Salinas, Calif., secretary.

New Castle County (Del.) Veterinary Association, the first Tuesday of each month at 9:00 p.m. in the Hotel Rodney, Wilmington, Del. Arthur P. Coogan, 2102 New Road, Wilmington 5, Del., secretary.

New York City, Veterinary Medical Association of, the first Wednesday of each month at the New York Academy of Sciences, 2 East 63rd St., New York City. C. E. DeCamp, 43 West 61st St., New York 23, N. Y., secretary.

Northern Colorado Veterinary Medical Association, the second Monday of each month. William D. Carlson, P.O. Box 478, Fort Collins, Colo., secretary.

(*Continued on p. 38*)

For TEAT PROBLEMS IN YOUR PRACTICE

To maintain unrestricted milk flow and provide antiseptic protection is of first importance in the care of injured teats, scab teats, and in post operative therapy.

Dr. Naylor Dilators, impregnated with Sulfathiazole, act as an internal bandage IN the teat canal. They provide gentle, non-irritating support and broad spectrum germicidal activity to injured teat mucosa. They promote normal tissue repair with a minimum of altered milking function of the streak canal. Positive retention—fit large or small teats.

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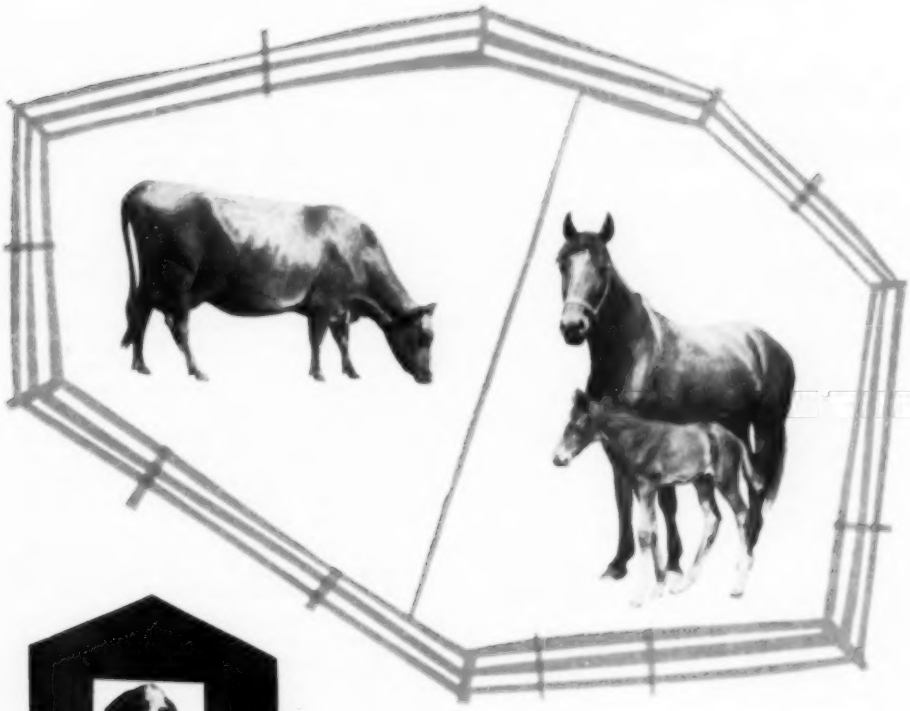

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*Rachman, M., and Frucht, T. R.: Vet. Med. 49:341, 1954.

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(COMING MEETINGS—*continued from p. 36*)

Northern New Jersey Veterinary Association, the fourth Tuesday evening from September through June, at the Casa Mana Restaurant, Cedar Lane, Teaneck, N. J. Robert R. Shomer, 1680 Teaneck Road, N. J., secretary.

Northern San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month. Tom Hagan, Gen. Del., Escalon, Calif., secretary.

Oklahoma County Veterinary Medical Association, the second Wednesday of every month except August and July. R. J. Keller, 1701 N. Highland Drive, Oklahoma City, Okla., secretary.

Orange Belt Veterinary Medical Association, the second Monday of each month at 7:00 p.m. in the Antlers Hotel, San Bernardino, Calif. William J. Kelber, 1111 West A St., Ontario, Calif., secretary.

Orange County Veterinary Medical Association, bi-monthly. Donald E. Lind, 2643 N. Main, Santa Ana, Calif., secretary.

Peninsula Veterinary Medical Association, the third Monday of each month. P. H. Hand, Box 1035, Millbrae, Calif., secretary.

(*Continued on p. 40*)

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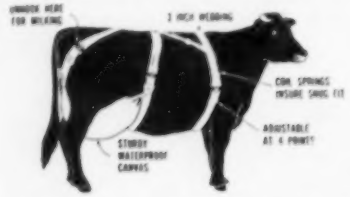

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(COMING MEETINGS—*continued from p. 581*)

Piedmont Veterinary Medical Association, the last Friday of each month at 7:00 p.m. in Mull's Motel in Hickory, N. Car. G. V. McCranie, Hickory, N. Car., secretary.

Pima County (Arizona) Veterinary Medical Association, the third Wednesday of each month, in Tucson. R. W. Adami, 2103 S. 6th Ave., Tucson, Ariz., resident secretary.

Portland (Oregon) Veterinary Medical Association, the second Tuesday of each month, in the Auditorium of the Upjohn Company. Victor T. Oliver, 9705 S.W. Barbur Blvd., Portland 19, Ore., secretary.

Redwood Empire Veterinary Medical Association, the third Thursday of each month. H. M. Strandberg, 203 D St., Petaluma, Calif., secretary.

Sacramento Valley Veterinary Medical Association, the second Wednesday of each month. S. M. Foster, 430 College, Woodland, Calif., secretary.

Saginaw Valley Veterinary Medical Association, the last Wednesday of each month. F. Ferguson, 1702 S. Dort Highway, Flint, Mich., secretary.

San Diego County Veterinary Medical Association, the fourth Tuesday of each month except July and August. E. R. Quortrup, 4005 Rosecrans St., Building 2, San Diego, Calif., secretary.

San Fernando Valley (California) Veterinary Medical Association, the second Friday night of each month at Eaton's Restaurant in Studio City, Calif. Howard C. Taylor, 2811 W. Olive Ave., Burbank, Calif., secretary.

Santa Barbara-Ventura Counties Veterinary Medical Association, Friday evenings every sixth week. Dee Wodars McDermott, 5879 Hollister, Coleta, Calif., secretary.

Seattle Veterinary Medical Association, the third Monday of each month in the home of Dr. Fred Cummings, 5828-5th, N.W., Seattle, Wash.

Southern California Veterinary Medical Association, the third Wednesday of each month. Rankin W. McIntyre, 203 Administration Building, Union Stockyards, Los Angeles, Calif., secretary.

South Florida Veterinary Society, the third Tuesday of each month, at the Seven Seas Restaurant, Miami, Fla. E. A. Majilton, 1093 N. E. 79th St., Miami, Fla., secretary.

South Puget Sound Veterinary Medical Association, the second Thursday of each month except July and August. Irwin Erickson, Experiment Station, Puyallup, Wash., secretary.

Tulsa Veterinary Medical Association, the third **Thursday of each month, in Director's Parlor of the Brookside State Bank, Tulsa, Okla. John Carnes, Muskogee, Okla., secretary.**

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KORE gives you *one product* which eliminates the need for separate soaps, separate deodorants and separate disinfectants. KORE is all three!

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CHANGE OF RATES

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Personal Want Ads—$4.00 for the first 25 words and 10 cents for each additional word; 35 cents for use of box number.

Commercial Want Ads—$5.00 for the first 25 words, 25 cents for each additional word.

Remittance must accompany order.

Deadline for want ads 8th of month preceding date of issue.

Names of classified advertisers using key letters can not be supplied. Address your reply to the key letters, c/o JOURNAL of the AVMA, 600 S. Michigan Ave., Chicago 5, Ill., and it will be transmitted to the advertiser.

Wanted—Veterinarians

Veterinarian wanted for research work on large animal diseases. Some post graduate experience in bacteriology and pathology plus ability to work with ranchers required. Good opportunity for qualified man. Apply Department of Veterinary Science, University of Nevada, Reno, Nev.

Veterinarian wanted by Veterinary Division of Swift and Company for service work and clinical research in livestock and poultry problems. Prefer recent graduate. Direct inquiry to Research Laboratories, Swift and Company, Chicago 9.

Veterinarian wanted to supervise professional, technical, and skilled personnel on the care, diagnosis, and autopsy of small animals for research laboratory. Submit resumé giving age, education, experience, and salary expected to The Ralph M. Parsons Company, Braddock Heights, Md.

Veterinarian wanted, with or without experience, for active small animal practice in Connecticut with view of future ownership or profit sharing arrangement. Address "Box J 6," c/o JOURNAL of the AVMA.

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Veterinarian with New Jersey license wanted for complete charge of dog and cat hospital. Address "Box J 10," c/o JOURNAL of the AVMA.

(Continued on p. 44)

A MESSAGE TO VETERINARIANS

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(*continued on p. 58*)

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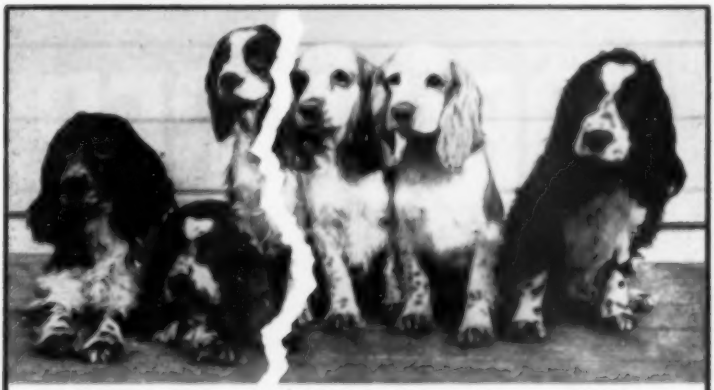

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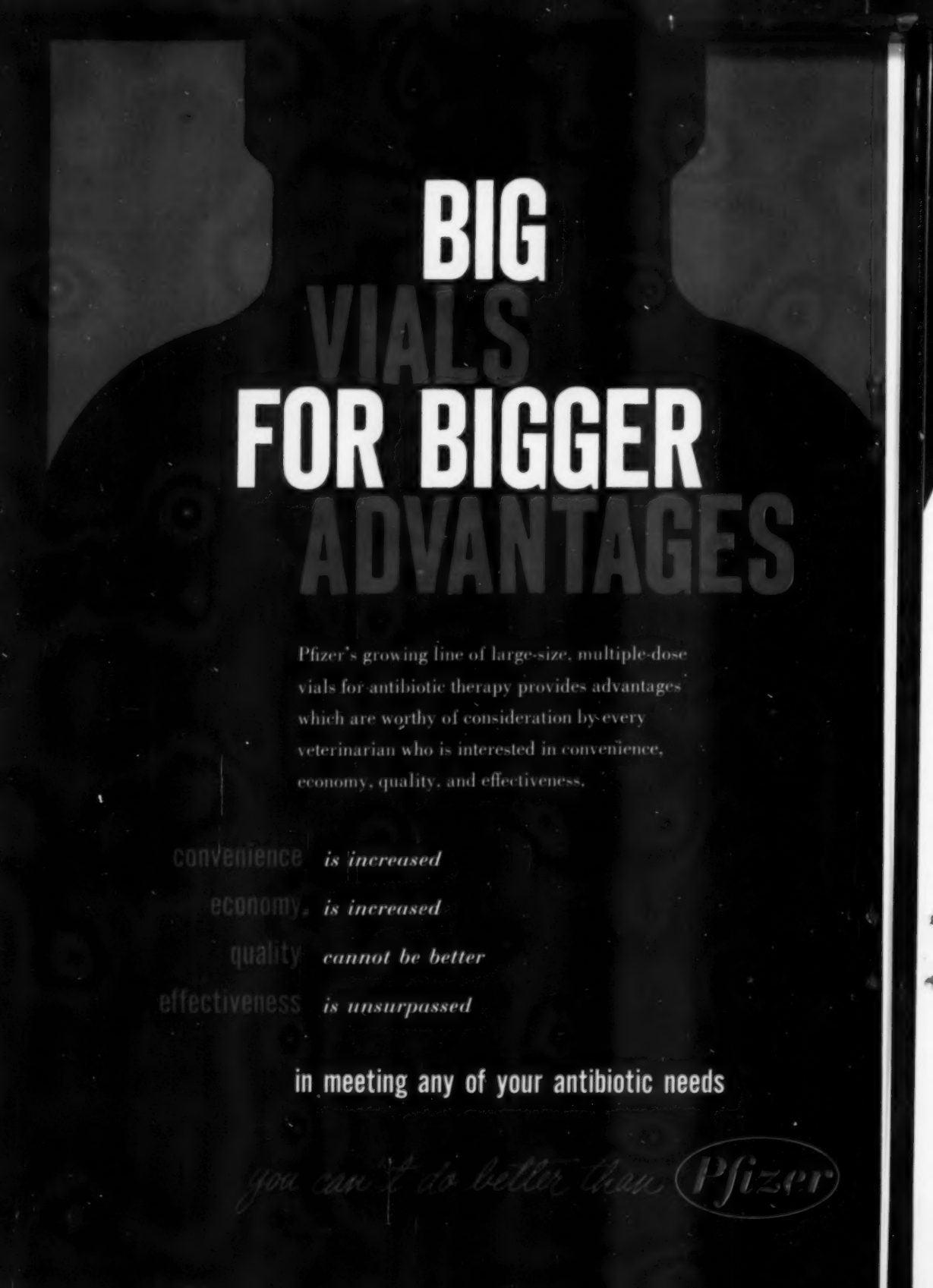
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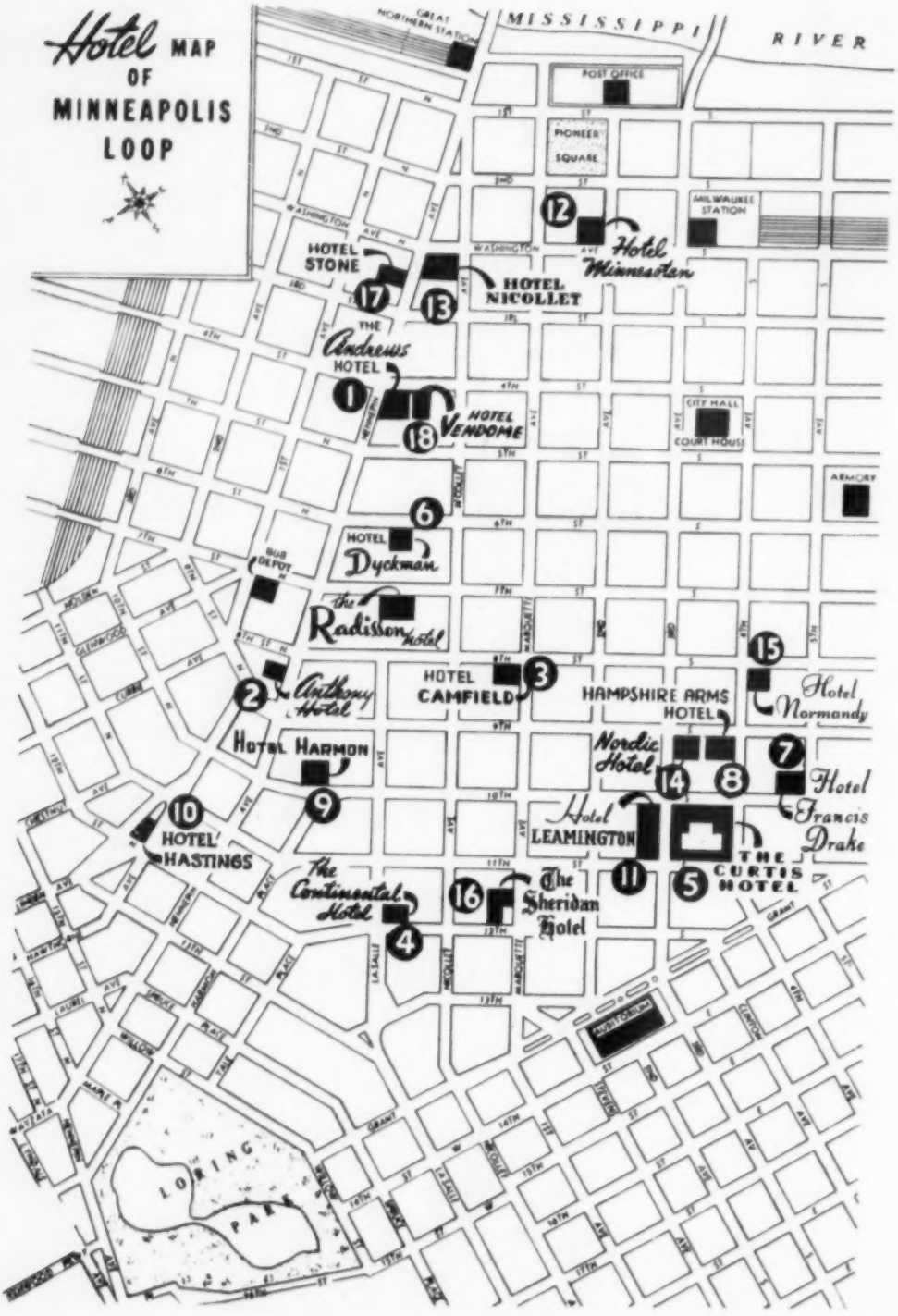
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MILWAUKEE STATION
HOTEL STONE
HOTEL NICOLLET
Hotel Minnesotan
THE Andrews HOTEL
HOTEL VENDOME
CITY HALL COURT HOUSE
ARMORY
HOTEL Dyckman
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the Radisson hotel
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Hotel Francis Drake
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THE CURTIS HOTEL
HOTEL HASTINGS
The Continental Hotel
The Sheridan Hotel
LORING PARK
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2 Anthony Hotel
3 HOTEL CAMFIELD
4 The Continental Hotel
5 THE CURTIS HOTEL
6 HOTEL Dyckman
7 Hotel Francis Drake
8 HAMPSHIRE ARMS HOTEL
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6. Dyckman	$4.00-7.50	$7.00-11.50	$8.00-12.50
7. Francis Drake	$5.00-8.00	$6.50-9.00	$8.50-10.50
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10. Hastings	$3.50-5.00	$6.00-7.00	$8.00
11. Leamington	$6.00-12.00	$8.00-14.00	$9.50-16.00
12. Minnesotan	$3.50-5.25	$5.00-7.00	$7.00-8.00
13. Nicollet	$5.50-10.50	$8.50-14.00	$9.00-14.00
14. Nordic	$4.00	$5.00-6.00	$7.00
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17. Stone	$3.25	$5.00	$6.00
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Arriving on (date) _____ at _____ a.m. _____ p.m.

Leaving on (date) _____ at _____ a.m. _____ p.m.

Room will be occupied by (attach list of additional names if necessary).

Your Name (Print or Type) _____

Street Address _____ City and State or Province _____

Compare PRICE

Compare RESULTS and you will always Prescribe MASTICS®

ACTUAL SIZE
THE ORIGINAL
UDDER BOUGIE

MASTICS P&S

100,000 units penicillin
50,000 mcg. dihydrostreptomycin

MASTICS act fast because medication in high concentration is quickly dispersed throughout the quarter. Improvement often noted in 12 hours.

MASTICS contain no grease, no wax, no insoluble materials to remain in the udder retarding antibiotic action. MASTICS milk out completely—produce no residue on the strainer.

MASTICS are so effective, cows are returned to the herd more promptly with less loss of production.

LOW IN COST...HIGH IN POTENCY
MASTICS SAVE TIME, MONEY, MILK

WRITE FOR SAMPLES AND PRICES

The Martin Laboratories
West Chester, Penna.

Correspondence

Honorary Members Express Appreciation

Following notification of their election to honorary membership in the AVMA at the 1954 annual meeting, the Surgeons General of the Army and the Air Force wrote the following letters to the Association:

Thank you very much for your good letter of 8 December 1954 advising me that I have been made an Honorary Member of the American Veterinary Medical Association.

I indeed consider this a singular honor, and cannot tell you how pleased I am at the thought that you and your confreres have deemed it appropriate to make me a member of your group.

I express to you and the Association my sincere thanks and assure you that I will always cherish this honor.

With very best wishes and kindest regards, I am

Sincerely,
s/ George E. Armstrong, Major General,
The Surgeon General, Department of the Army.

• • •

I would like to express my deep and sincere appreciation for your letter of 8 December advising me that I have been elected to Honorary Membership in the American Veterinary Medical Association.

I hold the members of your profession in the highest regard and have frequently made public acknowledgment of the tremendous contributions that they have made in supporting the medical program of the Air Force in the fields of food inspection, mess sanitation, and environmental sanitation.

I would appreciate it very much if you would express my heartfelt thanks to the president and other officers of your Association and also convey to them my sincere wishes for the continued advancement and success of your great society.

Sincerely yours,
s/Harry G. Armstrong, Major General,
U.S. Air Force (M.C.),
The Surgeon General, Department of the Air Force.

Article in Look Magazine

The letter reproduced below was one of two received by the AVMA office in response to the article "Dog Caesarian" which appeared in the Nov. 16, 1954, issue of *LOOK Magazine*. The story reported that the owner of a dog run over by a car claimed he "couldn't find a veterinarian who could repair the grievous damage: a crushed pelvis and two broken hips." According to the article, surgeons at the University of Chicago's Albert Merritt Billings Hospital accepted the case.

Nov. 9, 1954

Dear Dr. Hardenbergh:

I wish to take violent exception, as I imagine others have already done before me, to the ar-

(Continued on p. 523)

My specialty is to supply you with items developed in foreign countries, tested, approved and recommended by top authorities in the particular field of veterinary medicine.

COECOLYSIN BENGEN. The world's only veterinary preparation containing *Peristaltic* Hormone. Coecolysin restores peristalsis to the physiological level and maintains it at that level. All worries associated with drastics are over.

OTRHOMIN WEIDNER, U.S. Patent No. 2647897. Thousands of you have experienced that every statement concerning Otrhomin's wide range of indications is true and accurate. *Bactericidal, colloidal polarity reversing, antiallergic and Gamma Globulin increasing* properties are the scientific basis of effectiveness of this radically new *Broad-spectrum Chemotherapeutic*.

The average percentage of bacteriological acute mastitis cures is 84.4%. *By oral and/or parenteral*, not local application. No germ resistance, no interference with cheese-making as in Penicillin treatment. In coli calf scours both therapeutically and prophylactically. Your distributor will gladly furnish copies of American research on Otrhomin in skin conditions in small animals. Reported results: "Always good, sometimes spectacular." By parenteral application!
Additional American reports on other indications will follow.

ELECTROMAGNETIC METAL DETECTOR. A specially perfected electronic *diagnostic* instrument. It creates tremendous client goodwill that you cannot buy. This Detector was used in research which produced the most brilliant proposal for prophylaxis of traumatic gastritis (Dr. Cooper in the AVMA Journal, October 1954).

VETAFIL BENGEN. Without advertising, this new synthetic suture has been accepted by American veterinarians with unusual enthusiasm. Within four months thousands of you have recognized the excellent properties of this suture. A report in the December, 1954, issue of the AVMA Journal confirms your high opinion of this suture.
Be aware! Unscrupulous people are trying to sell a different suture in similar containers under names imitating Vetafil.
Be sure! There is only one Vetafil.

SELF EXPANDING TEAT DILATOR. A glance at it convinces you that it is not an ordinary teat plug but a surgical instrument working for you safely and smoothly.

PERLON OBSTETRICAL ROPES. Superior to chains. Can be sterilized by repeated boiling in water, autoclaving and storing in disinfectants. *Unbreakable*.

RUMENOTOMY DEVICE. The well known silent assistant that does not faint.

FLEXIBLE EMBRYOTOME. A modern instrument for the modern practitioner.

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Miller Vet. Supply Co., Fort Worth 1, Texas
Nelson Laboratories, Sioux Falls, S.D.
Northwest Vet. Supply Co., Oregon City, Ore.
Northwest Vet. Supply Co., Seattle, Wash.
Lyle A. Witney & Co., Inc., Denver 8, Colo.
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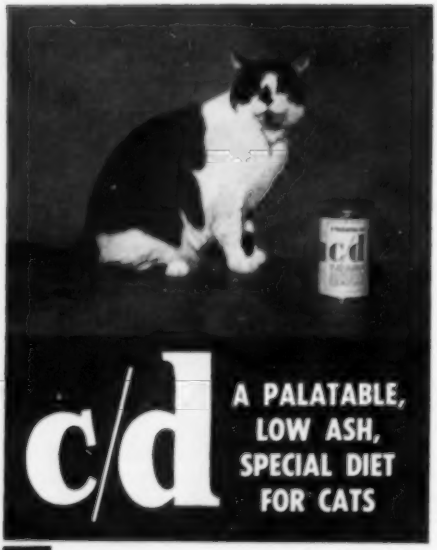
Sole Importer for Canada, United States, Central and South America

Dr. S. Jackson — Import - Export

533 Quintana Place, N.W., Washington 11, D.C.



DIAGNOSIS

Castrated male cat with symptoms of urethral obstruction, passing blood stained urine, and frequent attempts at urination.

TREATMENT

Administer anesthesia, carefully check urethra, determine character of and remove obstruction, give fluids parenterally, offer fluid diet temporarily and change to c/d as a permanent diet. See "Key to Prescription Diets" for dosage.

RESULT

If urinary tract is free of fine sand calculi, recurrence is infrequent if kept on c/d.

(Inquiry form for graduate veterinarians only)
HILL PACKING COMPANY, Box 148, Topeka, Kan.
Send information on therapeutic feeding ☐
Send information on other Hill products ☐
NAME.....
ADDRESS.....
CITY AND STATE.....

HILL PACKING COMPANY
P.O. Box 148 Topeka, Kan.

(CORRESPONDENCE—*continued from p. 50*)

ticle called "Dog Caesarian" that appeared in the Nov. 16, 1954, issue of *LOOK Magazine* last week. It most certainly does not cast a complimentary light upon our profession when it states, and I quote, "Stanley Cole of Chicago couldn't find a veterinarian who could repair the grievous damage: a crushed pelvis and two broken hips."

Already sadly aware of our lack of proper public relationship, I fear this latest injustice has done irreparable harm already. Will the association take some concrete action?

s/ J. H. Ripps
Asbury Park, N. J.

Considerable time and effort was spent by the AVMA staff in an attempt to locate Mr. Cole of Chicago but none of the individuals so listed in the Chicago telephone directory proved to be him. In discussing the incident with Dr. N. R. Brewer, superintendent of the Central Animal Quarters at the University of Chicago, he offered the following information:

> Ordinarily, animals needing special attention are referred to the medical staff through this office, and we have followed a policy of accepting selected cases that have been referred to us by veterinarians. Selected cases of current interest to us are diabetic dogs, dogs with constriction of the esophagus, "blue baby" dogs, and dogs with various types of cancer, especially leukemic dogs and dogs with mammary tumors. We have never considered a dog with fractured bones, or a dog requiring a caesarian, as other than a routine veterinary case and would have referred the animal to a practitioner had it come to our attention.
>
> This case did not pass through my hands. It is likely that Mr. Stanley Cole knows one of the doctors and brought the animal directly to him. Apparently Mr. Cole asked *LOOK* to do the article since it was not initiated by our public relations office. *LOOK* came to the University to ask to take pictures and permission was granted by our public relations office. *LOOK* is completely responsible for the text which was not shown to anyone from the University before it was published. The first I knew about the matter was when I saw the article in *LOOK*.

The letter reproduced below was written to Mr. Gardner Cowles, editor of *Look* Magazine:

Dear Mr. Cowles:

Concerning the article "Dog Caesarian" which appeared in your Nov. 16, 1954, issue:

While we feel confident that it was not the intent of *LOOK* to create unfavorable publicity for the veterinary profession, the following statement in the article has, in our opinion, cast an unwarranted cloak of inadequacy over the many thousands of veterinarians capable of performing such surgery:

> When Kiska, a four-year-old Malamute, was run over by a car, her owner, Stanley Cole of Chicago, couldn't find a veterinarian

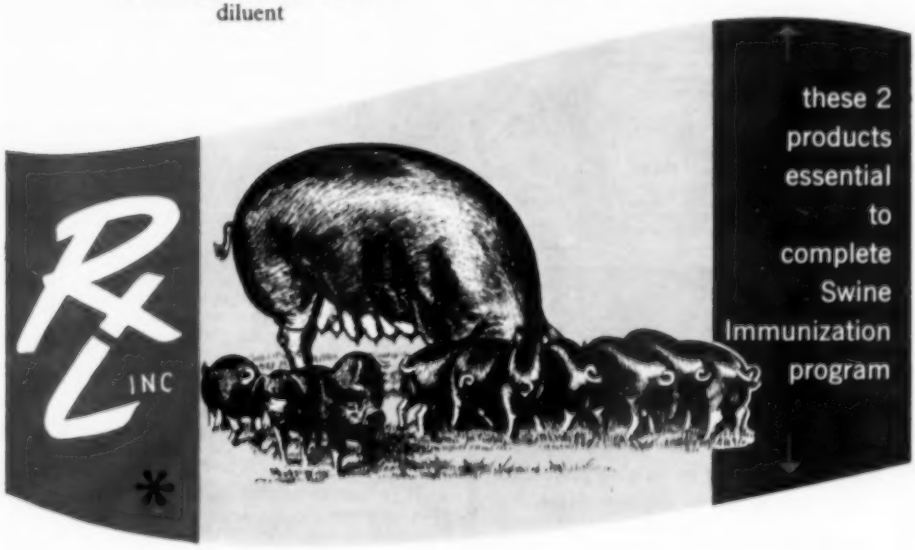
(*Continued on p. 54*)

for PROVEN Hog Cholera Protection

- Can't spread Cholera
- Confers quick immunity

Available in
50-20-10-3 dose vials with diluent

HOG CHOLERA VACCINE
(Modified Live Virus—Porcine Origin)



for SAFE CONTROL of Swine Erysipelas

The organisms are killed—can't spread the disease—won't set up new foci of infection.

Erysin RL*

Supplied in
50cc and 250cc vials
Dose is 5 to 10cc

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RESEARCH LABORATORIES, INC.
Saint Joseph, Missouri

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Provides an accurate pattern against which to cut with knife or razor blade. Fits firmly, cannot move or slip when clamped into position. Made of non-rusting, light, cast aluminum, highly polished. Lasts a lifetime with minimum care. Simplicity of design and construction reduces possibility of breakage or mechanical failure. Forms immediately available to provide distinctive marking of these breeds:

Boxer — postpaid $15.00
Boston Terrier — postpaid $15.00
Great Dane — Postpaid $15.00
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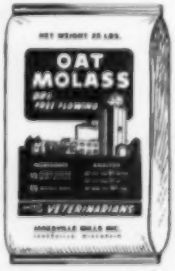
Set of above four — postpaid $50.00

These patented "championship" forms are patterned after markings of winners of top honors in show competition. Forms for other breeds made on special order. Sold to veterinarians only. Send check or money order.

MacALLAN LABORATORIES
Route No. 2, Box 420 Lansing, Michigan

Oat Molass

The new dry, free flowing, highly palatable molasses feed containing pulverized whole oats and corn sugar molasses.



Now available in 25-lb. sacks especially for veterinarians as a carrier for phenothiazine, sodium fluoride, and antibiotics.

Recommended by universities, medical supply houses, and veterinarians.

Oat Molass is cooked, blended, and processed under pressure.

Write for samples, prices, and complete information.

JANESVILLE MILLS, INC.
411 S. Pearl St., Janesville, Wis.
Phone 3371

(CORRESPONDENCE—*continued from p. 52*)

who could repair the grievous damage: a crushed pelvis and two broken hips.

We have not been able to locate Mr. Stanley Cole of Chicago to determine why the veterinarians consulted could not perform the necessary surgery, but there are a number of Chicago veterinarians doing extensive orthopedic surgery, including femur head prosthesis, who would have been qualified to take the case.

Since surgery of this type could be costly, we have seen cases where the inability of the pet owners to assume the expenses of such surgery, and not the professional inability of the veterinarian consulted, has been the determining factor in taking their pets to a place where they could get the job done for nothing.

Dogs with fractured bones, or dogs requiring caesarian section, are considered routine veterinary cases by the Central Animal Headquarters at the University of Chicago, and had this case gone through routine channels at the University, it would no doubt have been referred to a practitioner in the Chicago area.

This was not done since there is no official record of the case with the University's Central Animal Headquarters.

I am sure you will agree with us that the proved abilities of veterinarians and the benefits derived from competent veterinary care will always out-run whatever unfair publicity that may appear from time to time in any media of public information.

We would appreciate your giving this message to your readers.

Sincerely,
s/ Russell G. Rongren, Director
Membership Services.

It is regrettable that such unfavorable publicity has appeared in a magazine with a national circulation as large as *LOOK's*, but it is a situation over which no one, including the AVMA office, has any control. In fairness to other writers of veterinary articles, it should be pointed out that the majority of them do a very creditable job of reporting. As a result, we feel that the long-run effect of such writers and the AVMA's positive program of public information will ultimately force such negative publicity into obscurity.

• • •

American Veterinary Medical Association
Chicago 5, Ill.
Dear Sirs:

May I take the liberty to suggest a slogan or motto for Veterinary Meat and Poultry Inspection, Army Veterinary Inspection and Public Health: "Qualified Veterinary Inspection of Foods Protects and Insures Your Health."

With Season's Greetings.

Yours very truly,
s/ William T. Galbraith, D.V.M.
2012 Broad Ave.
Altoona, Pa.

M·L·V

FORT DODGE

This season choose the hog cholera vaccine backed by $3\frac{1}{2}$ years of successful field experience on millions of swine. M·L·V is the *original* modified live virus vaccine... offers you proven safety and efficacy, and long immunity.

"M·L·V" trade mark, Fort Dodge Laboratories, Inc.
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POLYOTIC*

Lederle Professional Line

POLYOTIC* INTRAMUSCULAR:
100 mg.-500 mg.-1.0 Gm.-5.0 Gm.

POLYOTIC INTRAVENOUS:
100 mg.-2.5 Gm.

POLYOTIC OBLETS®: 4's-6 x 4's

POLYOTIC CAPSULES: 50 mg., 25's-100's;
100 mg., 100's; 250 mg., 16's-100's

POLYOTIC TABLETS: 50 mg., 25's-100's;
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POLYOTIC MASTITIS OINTMENT: ¼ oz.

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POLYOTIC OPHTHALMIC OINTMENT 1%:
6 x ⅛ oz.

POLYOTIC TOPICAL OINTMENT 3%: 1 oz.

POLYOTIC SOLUBLE (Tinted) POWDER:
¼ lb.-½ lb.-1 lb.-5 lb.

AVIANIZED® RABIES VACCINE: (Canine):
1 dose-5 x 1 dose-10 doses

AVIANIZED RABIES VACCINE: (Cattle): 10 doses

AVIANIZED CANINE DISTEMPER VACCINE:
1 dose-10 x 1 dose

ANTI-CANINE DISTEMPER SERUM AND ANTI-INFECTIOUS CANINE HEPATITIS SERUM: 20 cc. 100 cc.

INFECTIOUS CANINE HEPATITIS VACCINE: 2 cc.-10 cc.

BRUCELLA ABORTUS VACCINE: 1 dose-5 x 1 dose-5 doses (25 cc.)

FELINE DISTEMPER VACCINE: 1 immunization (2 vials Vaccine, 2 vials Sterile Diluent, 2 cc.)

ANTI-FELINE DISTEMPER SERUM: 50 cc.

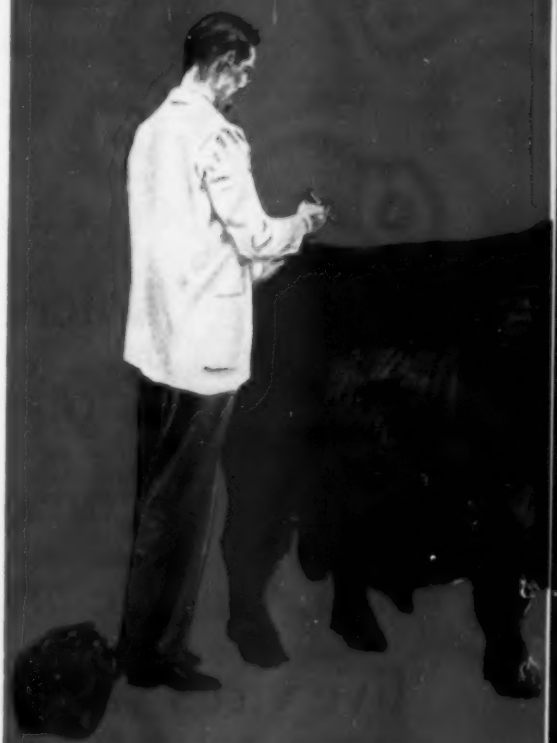
CARICIDE® Diethylcarbamazine TABLETS:
400 mg., 25's

DIETHYLSTILBESTROL SOLUTION: 10 cc.-50 cc.

LEPTOSPIRA CANICOLA-ICTEROHEMORRHAGIAE BACTERIN
Whole Culture Inactivated Vacuum-Dried.

Other products to be added.

*Trade-Mark



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Pearl River AMERICAN Cyanamid COMPANY New York

Tetracycline

Here is the newest of the broad-spectrum antibiotics, clinically proved and ready for intravenous, intramuscular, intrauterine, intravaginal, intramammary, conjunctival, aural and topical use.
No other antibiotic is available to the profession only in such a wide variety of dosage forms. No matter what route of administration, there is a POLYOTIC designed for proper professional application and for dispensing. *Available to Licensed Veterinarians Only.*

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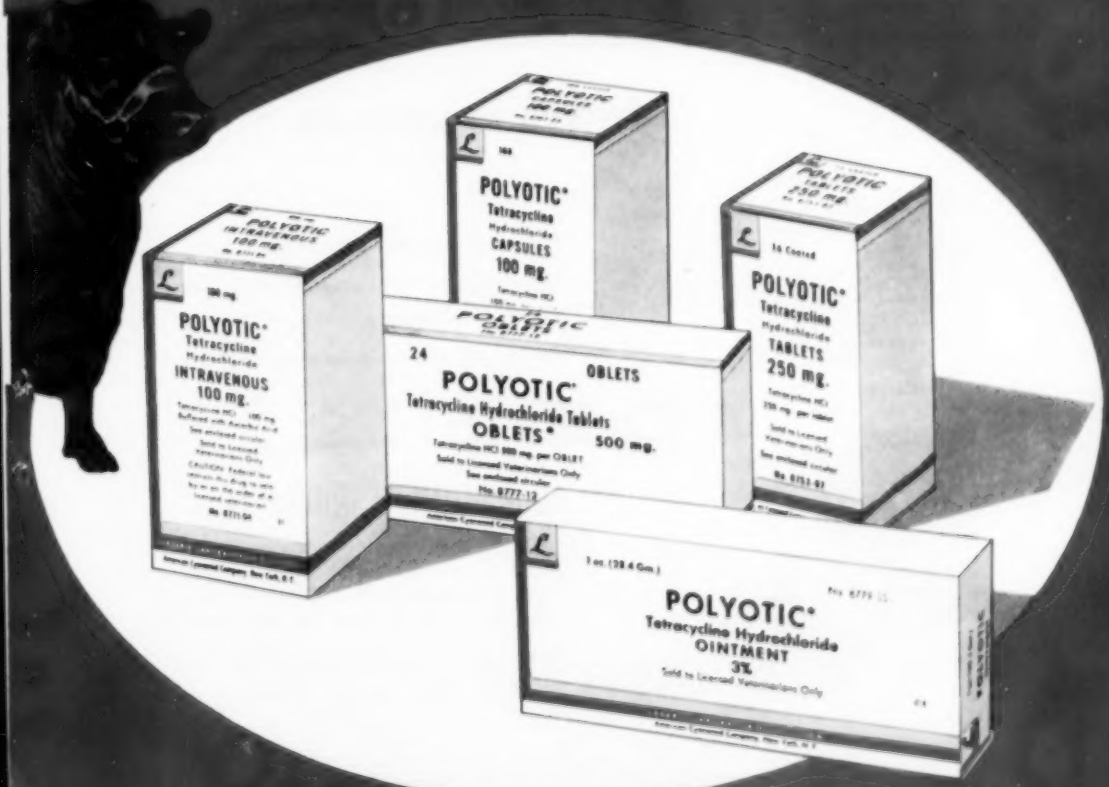

(CLASSIFIED ADS—*continued from p. 44*)

For Sale or Leases—Practices

Small animal hospital for sale; fully equipped, including x-ray. Has 30 cages and 10 outside runs. House is 7-room modern colonial. Practice established 30 years; located within 100 miles of New York City. Large animal work optional. Will require $15,000 down payment. Address "Box J 1," c/o JOURNAL of the AVMA.

Central Pennsylvania mixed practice for sale. Brick house, two-car garage, office basement rear; $19,500, will finance. Address "Box J 2," c/o JOURNAL of the AVMA.

Desirable home and mixed practice for sale in Massachusetts; good income, no competition. Fully equipped. Address "Box J 3," c/o JOURNAL of the AVMA.

Busy dog and cat hospital for sale; long-established, lucrative practice on main thoroughfare in built up area Long Island, N.Y. Modern brick hospital, capacity 75. Ill health compels me to retire. Exceptional opportunity. 1 or 2 veterinarians. Address "Box D 5," c/o JOURNAL of the AVMA.

Veterinary hospital and practice for sale in one of the better localities of the Northwest; includes large and small animal practice for two energetic veterinarians. Best of reasons for selling; $20,000 will handle. Address "Box J 8," c/o JOURNAL of the AVMA.

Outstanding, well-established, small animal hospital for sale in wealthy southern California area; well located, modern, fully equipped. Opportunity for one or two men with $15,000 or more as down payment. Address "Box J 13," c/o JOURNAL of the AVMA.

Lucrative, fully equipped small animal hospital and connecting residence for sale in Pennsylvania. Exceptional physical facilities. Ideal zoning, surrounding ground, and parking lot. Priced for quick sale; terms available. Address "Box J 14," c/o JOURNAL of the AVMA.

Well-established mixed practice for sale; fully equipped small animal hospital, residence on adjacent lot. Practice gross, $20,000 annually. Priced at real estate valuation, $35,000. Please reply only if seriously interested. Address "Box J 18," c/o JOURNAL of the AVMA.

Small animal practice for sale in Louisiana City. Established 25 years, excellent location; includes x-ray, instruments. Priced reasonably. Includes four-room upper apartment. Address "Box J 21," c/o JOURNAL of the AVMA.

(*Continued on p. 60*)

Vetafil Distributor

Vetafil, a synthetic suture (*see* JOURNAL, Dec., 1954: 448-449) long used in Germany, is now obtainable in this country through Dr. S. Jackson (pharmaceutical, diagnostic, and surgical specialties), 533 Quintana Place, N.W., Washington 11, D. C. Dr. Jackson is the importer and distributor (three regional distributors) of Vetafil in Canada and Central and South America as well as the United States.

always in season

Lameness, strains and sprains . . .

Muscle, joint and nerve inflammations . .

Fungus infections . . .

Irritations and eruptions of the skin . . .

IODEX

cum Methyl Salicylate

combines the stimulating and metabolic effects of iodine in Iodex and the analgesic action of methyl salicylate. Skin absorption may be aided by massage, heat or iontophoresis.

Samples and literature will be sent upon request.

MENLEY & JAMES, LTD., 70 WEST 40TH ST., N. Y. 18

"¡Valiente!" cried the Spanish admiral

He cheered as his launch fished this man and seven more waterlogged American sailors out of Santiago Harbor, Cuba, on the morning of June 4, 1898. This was straining Spanish chivalry to the breaking point, for Richmond Hobson (right) and his little suicide crew had spent the previous night taking a ship into the harbor entrance under a hail of cannonade and deliberately sinking her to bottle up the Spanish fleet.

Hobson was actually an engineer, not a line officer. In Santiago Harbor, he led his first and only action against the enemy. But his cool-headed daring made him as much a hero of the day as Admiral Dewey. And proved again that America's most valuable product is Americans.

These Americans—proudly confident of their nation's future—are the people who stand behind United States Series E Savings Bonds. They are the people who, by their spirit and abilities, make these Bonds one of the world's finest investments.

That's why there's no better way to protect *your* future than by investing in *America's* future! Buy Bonds regularly!

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It's actually easy to save money—when you buy United States Series E Savings Bonds through the automatic Payroll Savings Plan where you work! You just sign an application at your pay office; after that your saving is done for you. And the Bonds you receive will pay you interest at the rate of 3% per year, compounded semiannually, for as long as 19 years and 8 months if you wish! Sign up today! Or, if you're self-employed, invest in Bonds regularly where you bank. There's no surer place to put your money, for United States Savings Bonds are as safe as America!

For your own security—and your country's, too—
invest in U. S. Savings Bonds!

The U. S. Government does not pay for this advertisement. It is donated by this publication in cooperation with the Advertising Council and the Magazine Publishers of America.

(CLASSIFIED ADS—*continued from p. 58*)

Unexcelled location for a veterinarian, for sale or rent, in heart of suburban Bergen County, New Jersey; modern store, apartment, large parking lot. Closing kennels, dog grooming and supply business after 25 years because of health. Address "Box J 20," c/o JOURNAL of the AVMA.

Remittance must accompany advertisement

Established mixed practice for sale or lease; predominantly dairy. Located in excellent central Oklahoma livestock area. New modern five-room hospital. Excellent opportunity. Address "Box J 23," c/o JOURNAL of the AVMA.

BROKEN TEETH

—repaired in bottom clipper blades. Top and bottom blades sharpened to match. Save money—Guaranteed. Prices on Request

HIGHLY SPECIALIZED SHARPENING

Sales—Repairing on Oster and Stewart clippers.

Sharpened Blades Tested on Rabbit Fur

OSTER A 2 $35 STEWART $1.00

Prompt Service—Est. 17 years

MAIL TO

CLIPPER SERVICE OAK RIDGE NEW JERSEY

For Rent

Dog and cat hospital for rent; established for 35 years in metropolitan New Jersey. Address "Box J 11," c/o JOURNAL of the AVMA.

Miscellaneous

For Sale—Castle autoclave, No. 666, and electric Castle sterilizer. Both $250. Address Box 1051, Reidsville, N. Car.

Bovine Prolapse Preventer—Payton Utero-Vaginal Prolapse Preventer quickly easily applied to any size cow. Aluminum, re-usable, nonirritating, sanitary; noninterference with placenta release. Excellent for vaginal protrusion; dispensing. *See* article, JOURNAL of the AVMA, Dec., 1951. Only $3.00; two for $5.00; six for $12; prepaid. Dr. Jerome Payton, Morris, N.Y.

(*Continued on p. 61*)

WHITE'S ANIMAL CASTRATION

A new textbook for TEACHERS, STUDENTS and PRACTITIONERS.

Price $7.50

For sale by book dealers, also by the Author, George Ransom White M.D., D.V.M., P. O. Lock Box 901, Nashville, Tennessee.

SELF FILLING SYRINGE

The multi-injector's third hand

Another accurate smooth working ground glass barrel — leak proof metal plunger instrument with many possibilities. Adjustable for any capacity. By attaching one end of a rubber tube to the self-filling syringe and the other to a bottle of serum or vaccine any number of quick 1/4cc to 5cc accurate dose injections can be made. The instrument is operated with one hand. Anyone who injects a large number of animals will find the Self-Filling Syringe will pay for itself both in labor and serum saved after the first day's use.

Sizes 2cc and 5cc

Literature upon request

Inquire at your nearest veterinary dealer or wholesaler about this new improved outstanding product.

Boston Instrument Mfg. Co. Inc., 50 Thayer Street, Boston 18, Mass.

Dogs—any query, supply, book, chart, data. Tell your clients to write to *Dog World*—$3, 1 yr.; $5, 2 yr.; $10, 5 yr. Judy Publishing Co., 3323 S. Michigan Blvd., Chicago 16, Ill.

Clipper Blade Sharpening

Have your clipper blades sharpened by an expert with 28 years of practical factory training. We know how your blades must be ground to cut like new. Also clipper repairing. All work guaranteed to satisfy you or money back. Now serving veterinary colleges, and over 700 satisfied veterinarians. Why not you? 24-hour service. We ship insured prepaid. Avoid C.O.D. charges; enclose 75 cents for each set with blades. We are headquarters for Oster and Stewart clippers and blades. Complete clipping supplies; upper and lower replacements. Write for information on Oster and Stewart quality clippers and products. Service Grinding and Supply Co., 903 Chicago St., Racine, Wis.

Pregnancy Diagnosis—in mare from 45th to 150th day. Write for vials and mailing tubes. Prices: $7.00; 2 or more tests, $6.00 each. Pregnancy Diagnostic Laboratories, H. S. Lames, D.V.M., Dysart, Iowa.

Received Too Late to Classify

Four-room veterinary clinic and garage for sale; x-ray, instruments, drugs, etc.; $11,000; without adjacent lot, $8,500. Located on main highway. Address Dr. M. Parker, South 71, Fayetteville, Ark.

(*Continued on p. 56*)

Send for FREE 36-page Treatise on
CARROT OIL VITAMINS

Details the advantages of carrot oil vitamins when used in feeds to improve breeding results; to destroy oxidized milk flavors; and to promote general good health and glossy coats. Contains much information. Replete with data and references. Send for it today
NUTRITIONAL RESEARCH ASSOCIATES
Dept. 251-M, South Whitley, Indiana

CASTRATION
SAFE . . . SURE . . . EASY

USE **BURDIZZO**
BLOODLESS CASTRATOR
USED SUCCESSFULLY
OVER 30 YEARS.

YOU GET —
- Minimum growth set back
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- No maggots
- No screw worms

Ask your dealer for the original bloodless castrator made by La "Burdizzo" Co., Turin, Italy

BE SURE IT'S BURDIZZO

WHAT EVERY DOG-LOVER SHOULD KNOW

Fleas-Off protects your pet from fleas, ticks, chiggers, and other irritating insects!

REPELS AND KILLS THE PESTS THAT AFFLICT AND TORTURE YOUR DOG

Also shields against gnats, lice, flies, etc. Simply mist lightly on your pet's coat and his sleeping quarters to defend him from insect attack, no matter where he plays or roams. Immunizes him against other flea-carrying animals—relieves dry skin—effectively deodorizes.

$1.25
Wherever Pet Supplies Are Sold.

PROVED IN KENNELS AND HOSPITALS EVERYWHERE

Give Your Pet A Treat... Buy Fleas-Off Today!

Long-established practice for sale in North Iowa county seat; hogs, cattle, poultry (20% ♀), and pets. Two-way radio. One of most diversified and interesting practices in the state; reason for selling, personal. Annual gross, $50,000 to $55,000; reasonable. Address "Box J 25," c/o JOURNAL of the AVMA.

Mixed practice for sale in the Middlewest; about 50% large and 50% small animals. Well-equipped hospital. Practice large enough for two veterinarians. Address "Box J 26," c/o JOURNAL of the AVMA.

Graduate, approved school 1953, desires permanent location in large animal practice; prefer Middlewest. Married, age 26. Presently in Air Force; available June 15. Address "Box J 27," c/o JOURNAL of the AVMA.

Veterinarian wanted to operate established small animal hospital on partnership basis. No capital required; excellent opportunity. Maryland license required. Address "Box J 28," c/o JOURNAL of the AVMA.

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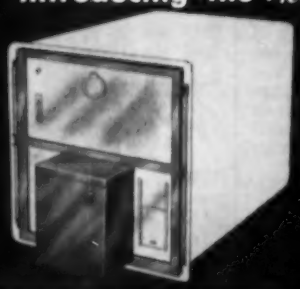

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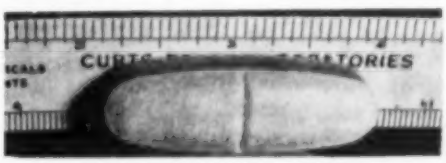

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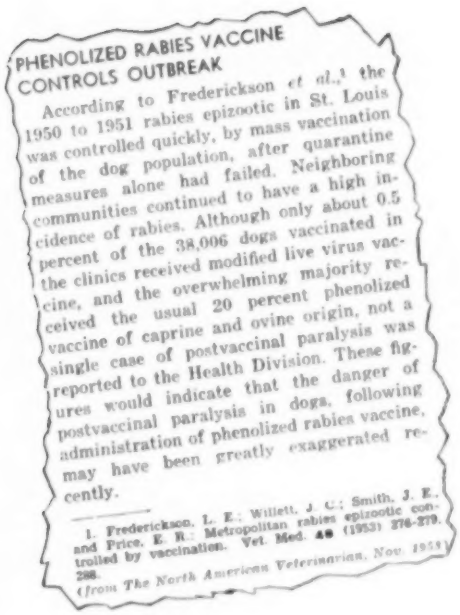

PHENOLIZED RABIES VACCINE CONTROLS OUTBREAK

According to Frederickson *et al.*,[1] the 1950 to 1951 rabies epizootic in St. Louis was controlled quickly, by mass vaccination of the dog population, after quarantine measures alone had failed. Neighboring communities continued to have a high incidence of rabies. Although only about 0.5 percent of the 38,006 dogs vaccinated in the clinics received modified live virus vaccine, and the overwhelming majority received the usual 20 percent phenolized vaccine of caprine and ovine origin, not a single case of postvaccinal paralysis was reported to the Health Division. These figures would indicate that the danger of postvaccinal paralysis in dogs, following administration of phenolized rabies vaccine, may have been greatly exaggerated recently.

1. Frederickson, L. E.; Willett, J. C.; Smith, J. E., and Price, E. R.: Metropolitan rabies epizootic controlled by vaccination. Vet. Med. **48** (1953) 276-279, 288.

(from *The North American Veterinarian*, Nov. 1953)

Experience —

The article at left as news is not new. It is timely only because it is human nature to seek the sensational, and overlook tried and time-proven methods. Phenolized rabies vaccine has been used as an efficient control measure for many years.

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